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THE "PRIMITIVE PHYSIC" OF REV. JOHN WESLEY

A PICTURE OF EIGHTEENTH CENTURY MEDICINE

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Such is the general recognition of the character and deeds of John Wesley that the prophecy of his sarcastic biographer, Robert Southey, has come true. Southey said:

> There may come a time when the name Wesley will be more generally known and in remoter regions of the globe than those of Frederic and Catherine. For the works of such men [as Luther, Loyola, Wesley] survive them and continue to operate when nothing remains of wordly ambition but the memory of its vanity and its guilt.

On the other hand, the little volume on domestic medicine entitled "Primitive Physic" that Wesley himself thought was the best of his many books, is now almost forgotten. Having picked up a copy recently, in a hurried reading I was so strongly impressed with the strange combination of good sense and superstition in it, that I read it carefully and learned something of the conditions under which it was composed. I believe the analysis of such a work may have not only an interest in recalling an almost forgotten period of medicine, but also some value as an index of more modern conditions. A medical book of any early period is likely to be interesting, particularly so when, as in the case of Wesley, the author is a man of superior mind and influence who lived at a time and in a state of culture of cardinal importance.

This is not the place for a full account of the long and active life of the "awakener of the English conscience," but some facts should be known in connection with the medical book that is my chief interest. John Wesley was no common man, either in his birth or education. His father had a superior, even brilliant, intellect, with some traits that have justified a comparison with the Vicar of Wakefield. The mother, descended from a line of intellectuals, had an austere but, at this distance, fascinating personality, and several of her nineteen children, whose early educations she directed on original lines, were gifted in many ways. John Wesley early showed a love of study and was fortunate in obtaining an education beyond the usual range, both in extent and accuracy, in the Oxford of that day. Habits of hard study and of constant physical and mental activity, formed in early life, never relaxed until his death. Handsome in face and figure, able to adapt himself to all kinds of people, but at the same time domineering and selfish, absolutely fearless in every kind of danger, he had enough of human weakness to make him a thoroughly sympathetic character for a biographer.

At a comparatively early age, while an undergraduate at Oxford, his attention was drawn to medicine. Having read the work on "Health and Long Life" by the celebrated Doctor George Cheyne, Wesley arranged his habits in accordance with the advice he found there, as well as in other medical works of either a popular or a technical character. Quite likely, as Southey said, he collected old women's nostrums. His interest in the care of the body in health and disease was unremitting. About a year before his book was published, with the assistance of an apothecary and a surgeon, he opened a dispensary in Bristol which was so successful that he followed it with others in Newcastle and London, combined with arrangements for the free treatment of the sick in their homes. On the discovery of electricity, he took a keen interest in the application of that force, in its then simple manifestations, to the treatment of disease. He bought a machine and appointed hours when those interested might try its virtues. Thousands, he thought, did so with great benefit.

In 1747, at the age of 44 years, he published "Primitive Physic." Twenty-three editions appeared during Wesley's lifetime, and the thirty-second and last London edition in 1828. My copy is one of the twenty-ninth London edition and is entitled:

"Primitive Physic;/ or/ an easy and natural method/ of/ curing most diseases/ By the/ Rev. John Wesley, A. M./ Late Fellow of Lincoln College, Oxford./ *Homo sum; humani nihil a me alienum puto.*/ The Twenty-ninth Edition/ London/ Printed by Thomas Cordeux;/ Sold by T. Blanshard, 14 City-Road, and 66 Paternoster-Row./ 1820."

The preface is dated London, June 11, 1747. There are postscripts dated Bristol, Oct. 16, 1755; London, Nov. 10, 1760, and Otley, April 20, 1780.

According to the Index Catalogue of the Surgeon General's Library, no less than seven editions were published in America between 1764 and 1839, several of them combined with other works on domestic medicine. The latest combined with Wesley's the works of T. E. Ware and Samuel Thompson, the latter well known as the "steam doctor."

It is certain that Wesley made, as he says in his prefaces, many revisions. Nevertheless, my copy shows many evidences of careless proof-reading, one of the most startling being the heading "200. A broken shin," which was remarked by Hawes in a criticism of the sixteenth edition, and which proves to mean a broken skin. It is possible that Wesley's habitual use of shorthand made him careless. The text gives many evidences of reformed spelling, as "t" for the suffix

"ed." I assume that no revision took place after Wesley's death, so that although my copy is a very late one, it can serve as a source. The book is a duodecimo; the printed page measures 13.9 by 7.1 cm.; the pages number 12, 13-108.

The preface begins with a sort of creed agreeing closely with the Miltonian cosmogony, and stating that in the beginning of the human race there was no place for physic. "As man knew no sin, so he knew no pain, no sickness, weakness or bodily disorder. The habitation wherein the angelic mind, the *Divinae Particula Aurae* abode, although originally formed out of the dust of the earth, was liable to no decay, and there was nothing without to injure it." Now, on the contrary, "the seeds of wickedness and pain, of sickness and death, are lodged in our inmost substance; whence a thousand disorders continually spring, even without the aid of external violence," and "increased by everything around us." "The sun and the moon shed unwholesome influences from above; the earth exhales poisonous damps from beneath; the air that surrounds us is replete with shafts of death; the food we eat saps the foundation of life." To lessen these inconveniences, to prevent pain and sickness, we must follow the command "in the sweat of thy face shalt thou eat bread." Exercise and temperance, even without strict adherence to "bread or the herb of the field, go far to preserve us." Then comes an account of the development of empirical medicine, illustrated by the American Indians, whose manners and customs the author had had an opportunity of learning when a missionary in Georgia in his early manhood. Although Wesley had been disillusioned as regards the religious ideas of Indians, he held the conventional eighteenth century view of their medical knowledge, saying that their medicines were quick as well as infallible. He also refers to the traditional Cretan stag (should it not be goat, as related in the fable of Melampus, and the discovery of the cathartic action of hellebore?) and the Egyptian ibis with its invention of the clyster. In short: "Experience and Physic grew up together." "The European" [and he might have gone back to the ancient Babylonian] "as well as the American said to his neighbor, 'Are you sick? Drink the juice of this herb and your sickness will be at an end.'"

Later, said Wesley, came the philosophical age. "Men asked how they might account for these things. They examined the human body and its functions, as well as other animals, vegetables and minerals. Thus physic became inverted; hypothesis took the place of experience and experiment. Also simple medicines were disregarded and even forgotten, and those remote from common observation were used," and "at length physic became an abstruse science, quite out of the reach of ordinary men." Admiration and profit as well as honor attended physicians, who increased the difficulties of their art in order to keep the bulk of mankind at a distance. Technical terms were increased. The knowledge of anatomy, even astrology, was insisted on. Compound medicines were introduced, "containing so many ingredients it was scarce possible for common people to know which it was wrought the cure"; exotics, neither the nature or names of which their own countrymen understood; "yea, and of dangerous ones." But from time to time exceptions occurred, "particularly the great and good Doctor Sydenham and his pupil, Doctor Dover" (whose book, "The Ancient Physician's Legacy" first appeared in 1732). "And some such may be found in the writings of the learned and ingenious Doctor Cheyne, who, doubtless, would have communicated many more to the world, but for the melancholy reason he gave one of his friends, that prest him with some passages in his works which too much countenanced the modern practice, 'O sir, we must do something to oblige the Faculty, or they will tear us to pieces.'"

Wesley then gave his reasons for preparing the book, having consulted only experience, common sense and the common interest of mankind. He thought most diseases could be treated as he describes, thereby saving fortunes otherwise spent on physicians or "pining away, through the ignorance or dishonesty of physicians." Books there are already, he admits, but "too dear for poor men to buy, and too hard for plain men to understand," and in these are too many dear and far-fetched medicines; many dangerous, and consisting of too many ingredients; a thing that "can never be reconciled to common sense." "Experience shows that one thing will cure most diseases, at least, as well as twenty put together. Then why add the other nineteen? Only to swell the apothecary's bill? Nay possibly on purpose to delay the distemper, that the doctor and he may divide the spoil." "Nor are so many medicines needed for correcting each other."

Wesley's idea of the use of the book is naive enough. "As soon as you know your distemper (which is very easy, unless in a complication of disorders, and then you would do well to apply to a physician that fears God), take the first remedy indicated, or if it cannot be had, another. If the first does not give the desired result, use the second, third, and so on. The remedy that cures one man will not cure another of the same disorder, nor the same man all the time." Some remedies he termed "infallible."

In all cases he advised exactness in manner of living, warned against mixed and highly seasoned foods and recommended a sparing diet, only water as a drink, or, "good, clear small beer"; "as much exercise in the open air as possible without weariness, light supper; early to bed and rising betimes." Above all, "that old fashioned medicine, prayer and faith in God." He quoted some rules from Cheyne, and added some forcible words on the advantages of a calm and tranquil mind with the passions kept within bounds, principles that he himself exemplified to a singular degree.

In the postscript of 1755, Wesley speaks of the "swift and large demand for the book; three impressions were called for in five years; it was republished in a neighboring nation and inserted by parts in the public papers." So he revised the whole, "omitting some remedies not so easy to acquire and adding others easy to be had, if not in every home or yard, at least in every town and almost every village in the kingdom." Because they were extremely dangerous he omitted antimony, opium, "the bark," steel and quicksilver, "except in a very few cases." Again he recommended in uncommon or complicated diseases, application without delay to a physician that fears God.

In the preface of 1760 Wesley said he added the word "tried" to those remedies which he found of the greatest efficacy, though he thought many others might be of equal virtue. He also spoke enthusiastically of electricity, "which comes the nearest an universal medicine of any yet known in the world." At the same time he warned against the "substitution evil," which was probably much worse in those days of large and complex draughts than it is now. Twenty years later,

in 1780, when he was 77 years old, Wesley issued a revised edition, again commending, in proper cases, the "physician that fears God." "From one who does not, be his fame ever so great, I should expect a curse rather than a blessing." Preferred medicines are now marked with an asterisk.

The text proper is headed "A Collection of Receipts," and consists of paragraphs recommending treatment, arranged under 288 headings in alphabetic order indicating diseases, symptoms and accidental injuries. There are 824 numbered paragraphs, but as there are a few without numbers, and as some paragraphs mention more than one form of treatment, the actual number of "receipts" is fairly large.

The nature of the headings may be gathered from a few. "Abortion, to prevent," comes first, followed by "For an ague," "Canine appetite," "To dissolve coagulated blood," "Hard breasts," "Cancer of the breast," "Children," "Chopt lips," "To prevent the ill effects of cold," "Blood-shot eye," "Pearl in the eye," "Old age," "A consumption," "Corns," "Delivery," "The Plague," "Worms," "Flat worms," "To open a wound that has closed too soon." At the end are a few recipes for various preparations, such as "Daffy's Elixir," a sort of eighteenth century peruna, containing senna, guaiac, liquorice, aniseed, coriander seeds, elecampane root and "raisins of the sun, in the best brandy"; a "more active preparation" contains also jalap and proof spirit or brandy. Turlington's Balsam, James' Powders, Scotch Pills, Emetic Tartar vomit and an eye water are also described. There are then a list of conditions cured by cold bathing, water-drinking, "electrifying" and the use of "fasting spittle," internally and externally. All are advised to buy their medicine at Apothecaries Hall, where "they are sure to have them good."

Much attention is given to general measures, as in Number 1, Abortion: "Women of a weak or relaxed habit should use solid food, avoiding great quantities of tea, and other weak and watery liquors. They should go soon to bed and rise early and take frequent exercise, but avoid being over-fatigued." "Persons who are subject to this complaint should steadily persevere all the year round in the use of the cold bath."

The bath is also recommended for ague, just before the cold fit, followed by the statement "nothing tends more to prolong an ague than indulging a lazy, indolent disposition."

From the section on ague we may learn the spirit of the whole work. Following the general statement just quoted, the patient is advised to take as much exercise as he can bear; to use a light diet, and for common drink, "lemonade is most proper." "4. Or take a handful of groundsel, shred it small, put it in a paper bag four inches square, pricking the side which is next the skin full of holes. Cover this with a thin linen and wear it on the pit of the stomach, renewing it two hours before the fit. Tried." "5. Or, apply to the stomach a large onion, split." "6. Or, melt two pennyworth of frankincense, spread it on linen, grate a nutmeg on it, cover it with linen and hang this bag on the pit of the stomach. I have never yet known it to fail." Other remedies are: yarrow; a drink of cold water followed by a sweat; "9, Or, make six middling pills of cobweb, take one a little before the cold fit; two a little before the next fit (suppose the next day), the other three, if need be, a little before the third fit. This seldom fails." Then, again, we find recommended salt of tartar (potassium carb.), sal prunella, camomile flowers, spirits of hartshorn, a small lemon, rind and all; 8 to 10 drops of laudanum or hiera picra; a waistcoat in which cinchona bark is quilted; a plaster of treacle and soot to each wrist, chicory water, wall flowers, beating together leaves and flowers with salt and applying to the sutures of the head; turpentine on the small of the back, vomiting with ipecac or saffron in wine.

The following are selected to illustrate the remainder of the book: "89, For hard breasts. Apply turnips roasted till soft, then mashed and mixed with a little oil of roses." "91, For a bruise, * Immediately apply treacle spread on brown paper. Tried." "92, Or, apply a plaster of chopt parsley mixt with butter." "93, *Electrify the part. This is the quickest cure of all." For burns, lime water and sweet oil "in the thickness of cream" is said to be the most effectual application the author ever met with. This is the well-known earron oil, or linimentum calcis, U. S. P., as directed by the British Pharmacopeia. A cancer of the breast of thirteen years' standing is said to have been cured by frequently applying "red poppy water, plantane, and rose water mixed with honey of roses." "107. If it be not broke, apply a piece of sheet lead, beat very thin and pricked full of pin-holes, for days or weeks, to the whole breast." Another remedy is "quicksilver and aqua sulphurata," which "has cured one far advanced in years." "Doctor Cheyne says a total asses' milk diet, about two quarts a day, without other food or drink, will cure a confirmed cancer." For "cholic in children," among other things a small teaspoonful of tartar emetic, one grain to four ounces of water," "will puke a child a week old; a large teaspoonful for a month old and so on in proportion. Repeat the puke every day, or every other day, as required."

Sixteen methods are recommended for dropsy, such as dock leaves bound around the joints and feet, inhaling the smoke of amber and vinegar on a burnt brick, or dwarf-elder tea, "which works by urine," and cures a dropsy in twelve hours' time. For sciatica, "boiled nettle poultice has been known to cure after 45 years' standing."

Wesley used physical means with great enthusiasm. He mentions massaging the abdomen an hour a day for dropsy, salt rubs for the apparently drowned, massage for earache and headache; for the breasts, after steaming, "to resolve coagulated milk," and for flabby swellings, followed by a proper bandage. "To kill the animalculae that cause the gums to waste away from the teeth" he recommends gargles of salt water. He advised change of air in whooping-cough, bleeding for menorrhagia and in plague—50 to 60 ounces for the latter.

External methods of treatment vary from the simplest to the strangest or most absurd; from lime-water and olive-oil in burns, or turnip poultices for hard breasts, to soot and treacle for ague, hogs' lard to the feet for whooping-cough, scraped peony to the feet for convulsions, rotten apple poultices for inflamed eyes. (He warned against bread poultices over inflamed eyes.)

He recommended issues, then in great repute, for asthma and to cure quinsy, for the latter placing the issue in the thigh. His ideas on clothing were sensible, advising against the roller for infants, and commending the flannel binder for colic. Clysters he used

sparingly, as for apoplexy, butter and salt, laudanum for hysteric colic, and cold water with woodbine in fevers.

He gave suggestions about diet, including such things as prunes for constipation (used by the Romans), whole wheat bread—long before Graham—for the same; bread crusts for dropsy; vegetables for obesity; oysters, four or five, for heart-burn; withholding meat from children under 2 years and tea before 12. Milk he often recommended, as in the treatment of asthma, epilepsy, consumption and whooping-cough.

Charms, amulets and other strange or occult methods are numerous and varied. I have noted about seventy, a small proportion of which only can be quoted. There is a little roll of white paper placed under the tongue for nose-bleed; a sheet of lead (mentioned before) to be worn for days or weeks over a cancer of the breast; powdered horse-spurs ("warts that grow on the inside of the horses' fore legs") in ale, for the same, or goose-dung and celandine externally; "or blow the ashes of scarlet cloth into the mouth or throat for cancer of the mouth. It seldom fails." This is also used for thrush. For consumption, "take a cow-heel from the tripe house, ready drest, two quarts of new milk, two ounces each of hartshorn shavings and isinglass, a quarter of a pound of sugar candy and a race [root] of ginger; put all of these in a pot and set them in an oven after the bread is drawn. Let it continue there until the oven is nearly cold; and let the patient live on this. I have known this to cure a deep consumption more than once." Cow's heel broth is also recommended externally for restoring strength after rheumatism. "184, Or, every morning cut a little turf of fresh earth, and lying down breathe into the hole for a quarter of an hour. I have known a deep consumption cured thus." "191, In the last stages, suck a healthy woman daily. This cured my father." [In the twenty-sixth New York edition, according to Plummer, *Nashville Journal of Medicine and Surgery*, October, 1858: "tried by my father."] For cramp he advised tying the garter tight under the knee; or "hold a roll of brimstone in the hand. I have frequently done this with success." For films on the eyes: "dry zibethum occidentale, i. e., stercus humanum, slowly, powder it fine and blow it into the eye twice or thrice a day." For hot or sharp humors, "lap a thin slice of raw beef on the nape of the neck. Tried." For white specks in the eye, "going to bed put a little ear wax on the speck. This has cured many." For epilepsy many methods are advised, as "blow tobacco smoke down the throat."

Metallotherapy is anticipated by saying, "One who is subject to the falling sickness may prevent the fit if he feel it coming on, by this simple expedient. Let him always carry a piece of metal as broad as he is able to hold between his teeth when his jaws are stretched to the utmost. When he feels the fit approaching, let him immediately put this between his teeth so as to keep his jaws at their utmost stretch. In about a minute this will bring him quite to himself and prevent the fit for that time." "Or, in the fit, a similar maneuver by a bystander will stop the fit." For gout, "apply a raw lean beefsteak. Tried." For iliac passion, "hold a live puppy constantly on the belly. (Dr. Sydenham)." "For pleurisy take half a drachm of soot." Warm cow-dung spread on leather, with cumin, is advised for "windy rupture"; "it commonly cures in two days." "Rubbing with fasting spittle" is recommended for shrunken sinews: "Tried." "To stop vomiting apply a large onion split across the grain to the pit of the stomach, Tried." "For relaxed uvula, bruise the veins of a cabbage leaf and lay it hot on the crown of the head; repeat if needed, in two hours. I never knew it to fail." For a whitlow a poultice of chewed bread is recommended.

To one not familiar with medical practice in the eighteenth century, these trivial, absurd or disgusting remedies seem impossible for a man of Wesley's education and knowledge, in an age after Bacon, Harvey, Locke, Sydenham and Newton and in the century of Hume, Voltaire and Franklin, in the period of the Encyclopédie, the "Wealth of Nations" and the "Social Contract." Those who recall the practice of Wesley's contemporaries, or who investigate it, will come to a different conclusion. Let us consider the period and the medical ideas during the time in which Wesley lived, leaving out of consideration the fact that he was a theologian, because we may see that that had little to do with the case. He was a man of wide reading and contact with all kinds of people and had a mind open to many topics. His life almost filled the eighteenth century, June 17, 1703, to March 2, 1791; a century that proved epoch-making for England's political greatness and literary preeminence. The essay and the modern novel began then with great brilliancy; Shakespeare became permanently established as the greatest figure in English literature, while a galaxy of other immortals left their impress on prose and poetry. Blenheim was fought the year after Wesley was born, the Battle of the Nile the year in which he died. Although it has been called the age of enlightenment, it has also been aptly called the "Cinderella of Centuries," and in regard to social and intellectual conditions the reproach is only too well deserved. The Revolution, which brought in a new, and, in many respects, liberal government, did little to elevate intellectual development, encouraged hardly at all by the Puritans. Newton enriched physics and gave a stimulus for future investigations, but his immediate effect on medicine was chiefly the strengthening of crude mechanical theories. During the Civil War and under the Restoration quackery reached a degree of boldness and rapacity never known before, and probably not since.

The microscopic discoveries of Leeuwenhoek in the end of the seventeenth century were not followed up very actively during the whole of the eighteenth century. In practical medicine the objective clinical observations and relatively sober therapeutic methods of Sydenham made hardly any impression until after Wesley's death, when the great French school of Corvisart, Bichat, Bayle and Laennec began the real medical renaissance. The fact that Wesley commends Sydenham and his disciple, Dover, the buccaneer and inventor of Dover's powder, is of more than passing interest, for Sydenham has always been one of those more talked about than read, more praised than studied, and while the great masters of medicine all joined in lauding Sydenham, the rank and file of the profession were almost wholly uninfluenced by his methods, but continued, as Locke said, in "the romance way of physic." There were some extenuating circumstances. Sydenham praised the clinical methods of Hippocrates, but so did every system-maker who flourished in the long centuries of system-making. He

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lauded accurate observations and well-founded deductions, and his clinical pictures are often models of clearness, but also often so loaded with theories that it is tiresome to read them now. If he deserves credit for recognizing the importance of morbid processes, he did much to continue the error of the personification of diseases. Though he praised objective delineation of clinical conditions, he assisted in fixing the idea of species in disease, like those in botany. His view that the Creator had placed remedies in every land that act as specifics in every important disease, was quite as harmful as the older theories and has weighed down medicine even to our time. I shall give some examples showing that his methods in therapeutics hardly deserved Wesley's praise.

Of Sydenham's followers, one of the most renowned was Boerhaave. He improved on Sydenham in the fulness and accuracy of his clinical pictures, and made a great advance by his efforts to associate the anatomic changes with the symptoms. His therapeutics were immensely ahead of his time, for he taught principles and rarely gave formal prescriptions, but it is more than probable he could not be understood by many of his contemporaries. This is the main reason why he is known chiefly through Van Swieten and Haller, his most brilliant pupils. The former deserves credit for the stimulus he gave to clinical teaching in Vienna, but this only became effectual late in the century, and the same is true of the physiologic innovations of Haller.

In England the names of Pitcairn, Pringle, Cheyne, Morton, Huxham, Mead, Cullen and Brown are the most conspicuous before and during Wesley's time, and they are read now only by students of medical history. Some of them I shall have to quote. A few more names and dates will make Wesley's medical and biologic environment plainer than any detailed explanation.

John Hunter, the greatest mind of the period, was twenty-five years younger than Wesley, and outlived him two years. Morgagni was twenty-two years older; his great work on the "Seats and Causes of Disease" did not appear until 1761, and although in time it helped to destroy the dogmas that had so shackled medicine before that, the effect on the practice of the time was slight. Peyer, Leeuwenhoek, Leibnitz and Mead were older. Haller was five years younger, Lieberkühn, Van Swieten, J. F. Meckel senior, Senac, Casper Friedrich Wolff, Linnaeus, Auenbrugger, John Brown and Huxham were almost contemporaneous. Priestley, Vicq d'Azyr (1748-94), Sömmering, Cuvier and Galvani were born when he was middle-aged or later. Lavoisier was guillotined three years after Wesley's death, and Jenner made his first experiments with cow-pox two years later. Bichat was not born until Wesley was nearly three score and ten. The public teaching of anatomy in England began in the early part of the eighteenth century. Inoculation was introduced into England when Wesley was 18. Electricity was discovered in 1745, when Wesley was 42. Black discovered carbon dioxid in 1750. Cavendish made his observations on air when Wesley was over 60, and made water from gas when he was almost 80. The use of digitalis was not made known by Withering till Wesley was 72 years old.

Wesley's attitude toward medicine was, of course, to be explained partly by general mental traits, and one of his most pronounced characteristics was a deep-seated credulity. As a child he experienced the ghost episode in his father's rectory, so fully related by all his biographers, and he always inclined to a supernatural explanation for it, though his brother Samuel shrewdly suggested that while "wisdom found no explanation, wit might find many" for the ghostly knockings. He recommended in general the habit of suspending judgment as a safeguard against hasty decisions, but Lecky is perhaps right in saying he was utterly incapable of that function. He believed in the claim of Elizabeth Hobson, of seeing her neighbors just before or at their deaths and in a celebrated prediction of the end of the world. He believed in witches, thinking that to doubt them would be to disagree with the authority of the Bible, but in Wesley's time many people little influenced by the Bible believed in witches. Several witches were executed in Wesley's childhood; the last, in Scotland, was burnt in a pitch barrel in 1727 when Wesley was a Fellow of Lincoln College. After the earthquake in Lisbon in 1755 the London theaters were closed for a time out of fear of a similar judgment.

Wesley was curious and inquisitive, but was a better logician than observer, like many in his time, and it was a time when reasoning was valued much more highly than accurate observation. As Lecky says, Wesley had an exaggerated passion for reasoning, but neglected premises.

Some of the great delusions of the middle ages still flourished. Belief in the healing power of the royal touch for scrofula was stronger after the Restoration than ever before, and the prayer used in the ceremony was inserted in the Prayer Book in the time of Queen Anne and repeated in that of George I. Samuel Johnston was "touched" in 1712. Not only great divines, but surgeons of reputation testified to the reality of the cures. Ridicule did not shake it. In France other gifts of Louis XIV gave rise to a parody on the formula: "Dieu te guerisse, le Roy te touche" —"God save you, the King has kissed you," but the custom was kept up in France until 1825, and even later, in remote parts of Scotland, coins with the effigy of Charles I were supposed to carry the miraculous power.

Let us analyze some of Wesley's medical methods and views more in detail. Taking first materia medica, he used about 160 drugs. All of them and more were used by Sydenham, and particularly many that are now obsolete. Seventy-eight, or nearly half, are still in the U. S. Pharmacopeia. Eleven others were formerly there, most of them up to 1890 (valid to 1903) and forty more are mentioned in the second part of the U. S. Dispensatory (1907). Most of the official drugs used by Wesley are completely ignored by leading physicians now, and he rarely used the more potent drugs. So we find asafetida mentioned only once, for insomnia, "as good as opium"; aloes, arsenic (for cancer of the breast, internally), cantharides (for diabetes), digitalis (for white swellings), male-fern (for worms), each once only. Tincture of iron is used only on tents, for nose-bleed, but steel filings, official in the U. S. P. in 1850, is recommended for green-sickness, and forge-water for mouth wash with alum. Laudanum, aside from its use in ague, is recommended for colic, in clysters, in epilepsy, and for quinsy, at night. On the other hand, tar-water is recommended for twelve conditions, including old age. (Bishop Berkeley, who made tar-water famous, was earlier than Wesley.) Burdock root and seed are recommended eight times for various conditions, from colic

to leprosy; nettles are used for eleven conditions, from hemoptysis to sores ("any old sore" as Wesley, with a modern touch, puts it), or nettle stings.

It is interesting to compare Wesley's treatment with that of some of his contemporaries and I begin with one whose works had great influence during the latter half of the eighteenth century. Frederic Hoffmann was more than forty years older than Wesley, and lived until the latter was almost 40. He was a man of extraordinary industry and corresponding influence. According to him, reason and experience were the foundations of medicine, which in time would become a science through the aid of physics and anatomy. His mechanical theories gave the characteristic features of his system and long affected the views of the profession. He deserves credit for popularizing the use of mineral waters, and one of his mixtures, well known as Hoffmann's anodyne, is still prescribed. Guided by his view of pathology, he made extensive use of antispasmodics, sedatives and evacuants.

In tertian fever Hoffmann vomited with ipecacuanha or tartar emetic; he thought repeated attacks of intense heat may dispose the stomach to inflammation and therefore endeavored to lessen the fever. Purging salts may be substituted for, precede, or be combined with, emetics, or if there is great weakness or sensibility of the stomach, emollient and carminative clysters and gentle laxatives, manna, rhubarb, sal diureticum (Potas acetas) and some aromatic oil are to be used. "The next indication is to strengthen the solids, particularly the stomach and intestines; and of all the known astringents or corroborants, Peruvian bark is the most successful; given in the time of intermission in doses of about half a dram every four hours." "It raises the pulse and spirits and increases perspiration in choleric persons, loosens the belly and by these marks discovers its salutary operation." After the fever has been removed, the bark must be continued with elixir of vitriol, bitters and some stomachics. Niter, sal ammoniac or alkalines may be added to the bark in certain cases. Venesection is proper and an infusion of chamomile flowers is to be drunk some hours before or after. "In obstinate tertians, as autumnal ones generally are, and those which have degenerated in quotidians, antifebrile draught composed of simple waters, salt of wormwood and spirit of vitriol, exactly neutralized, is of eminent service." Hoffmann opposed opiates in malaria, against the authority of Sydenham and Lind.

The history of a case is instructive, in showing the overdosing and the long course of the disease. "The hot fits continued six hours. During the third paroxysm, saline nitrous juleps were given at intervals; the crisis promoted by an infusion of scordium (alliaria off.) and lemon peel; and niter with sal diureticum given in the intermission." These medicines were continued until the ninth paroxysm, when "the symptoms being much mitigated, the patient was purged with manna and sal polychrest (saltpeter and sulphur), the fever stopped by an electuary of bark and the cure confirmed by balsamic peels and an aperient saline powder."

For hemoptysis, Hoffmann advised a mixture as a decoction in ale, of daisies, red roses, chamomile flowers, milfoil (*Achillea*, U. S. P. 1870) tops, saracens, comfrey, ground ivy, dead nettle, veronica, sanicula, wintergreen, fennel, fennel seeds and nutmeg.

For consumption he recommended milk; that of the ass on account of its "sweet detergent serum"; "for healing lacerated parts, goats' milk will suffice; and for repairing the wastes of flesh and strength, nothing can exceed human milk, sucked immediately from the breast." "The virtues both of milk and whey can be improved by feeding the animal on pectoral plants."

For cleansing and healing pulmonary ulcers, the best balsam is composed of copaiba, myrrh, saffron, aromatic oils, opium, oil of almond, spermaceti, honey and wax.

"As phthisis frequently proceeds from translation of acrimonious humors to the lungs, the revulsion and evacuation of chest humors may be attempted by issues in the neck and between the shoulders."

For iliac passion Hoffmann quoted Hippocrates' method, and went on to give anodynes and carminatives, or if these fail, a pound of quicksilver.

For skin diseases, he used baths with slag, but looked on bleeding as the chief remedy, even in the itch, and held that external remedies should always be the last, and not used until blood and humors were purified.

Another influential author in Wesley's early life was Richard Morton, whose works on consumption, fevers and other diseases were held in high repute for a long time. In the treatment of consumption of the lungs, Morton advised bleeding, followed by a "gentle vomit" of honey of squills; "yea, and sometimes crocus metallorum (antimony), after which opiates are to be used, such as cordial milk water, carduus water, barley-cinnamon water and white poppies." Purges are to be added, like senna, cassia, tamarinds, coriander seed, manna and sal prunella. A sleeping medicine is to be given, such as rose, aloes and hounds-tongue pills, gilt, given every other night "after the patient has been blooded," besides diaphoretic and sudorific medicines and vesicatories to the arms and shoulders. "We must not by any means neglect the frequent use of those medicines commonly called pectoral or pulmonary, which must be used very plentifully, as it were in the manner of a diet, but always in such a form as is most grateful to the patient. For these we may take sugar candy, sugar of roses, or black lozenges for a cough, which must be often and gently swallowed. Butter, buttered ale, linseed oil, raisins and figs may be used; a "neat form" of expectorant is the following: "Oil of fresh almonds, syrup of comfrey, red poppies or dried roses, syrup of meconium—an opium preparation—and sugar of roses, or lohock of foxes' lungs, colt's foot, purslane, syrup of jujubes, maiden-hair, flower of brimstone, tincture of saffron, cold species of tragacanth, of pearl, Haly's powder, saccharum peridiatum." There are many pages of such prescriptions, one containing powder of wood-lice. It may be supposed that the lohock of foxes' lung is a vegetable remedy, but this is not so, the lungs of real foxes, killed in hunting, being used.

The celebrated Huxham gave one of the most accurate of the early descriptions of typhoid fever. He also had the sagacious view that bleeding was not useful in that disease. What he recommended was a blister behind the ear, "a gentle emetic" and "an easy clyster." "Blisters," he says, "are useful at all times of the disease, for by them the oscillatory motion of the vessels is promoted and the subtle salt of the cantharides incides the viscid humors, and at length expels them."

He further advised "attenuants which greatly irritate the nervous fibrillae," such as cinnabar, sulphur, galbanum and asafetida. Large quantities of simple

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cold water he considered harmful, but Peruvian bark, snake root, elixir of vitriol, tincture of roses, mulled wine, etc., are all advised.

Huxham also studied lead colic and treated it rather more actively than Wesley. He gave a vomit of ipecacuanha, sal absynth and chamomile flowers, to which tartar emetic may be added, followed with purges with opium and calomel, and later by milder cathartics like rhubarb.

Let me quote from Sydenham himself to show the examples Wesley had. I gave Wesley's treatment for iliac passion, which included, in the fashion of the time, various forms of intestinal obstruction. Among other things, he mentioned the use of a live puppy and referred to Sydenham.

In the treatment of that form of ileus due to irritation with inverted action of the peristaltic movement, the English Hippocrates rejected bullets and quicksilver. He began with salts of wormwood in lemon juice night and morning, with sweetened mint water between, and a "live puppy kept continually lying on the naked belly." Two or three days after the pain from vomiting had wholly ceased, he gave a drachm of Pil. coch. maj. in mint water. "The puppy is not to be taken off before the patient begins with the pills." The pill mentioned contains:

French hiera picra	3 x
Lozenges of alhandal (colocynth)	3 iiiss
Scammony	3 iiss
Gummy turbeth (mercuric subsulphate)	
French lavender, āā	3 v
Syrup of French lavender	q. s.

[Hiera picra was made of cinnamon, lignum aloes, asarum root, spikenard, mastich, saffron, aloes unwashed, and honey.]

When we see Sydenham using such mixtures and many others containing from three to five dozen ingredients, we understand the practical result of his theories. "A murderous array of diseases has to be fought against," he said, "and the battle is not a battle for the sluggard."

There is an interesting example of Wesley's scholarship in the reference to the use of a live puppy. In Latham's translation of Sydenham's works, published by the Sydenham Society, a "live kitten" is specified. In Kühns' Latin edition, as well as in Greenhill's, used by Latham, the word is "*catulum*." Now *catulus* means in general the young of any animal, but especially a puppy, as shown by illustrations in Harper's Latin Dictionary. Mead, a contemporary of Wesley, quoted this use of a puppy with approbation.

As Sydenham's therapeutic methods were relatively simple, as compared with the prevailing practice, we can understand Wesley's advance in the same direction. His care for the purses of the sick can be understood by the complicated mixtures then, and much later, in use. Dover gives the actual figures by saying he "could never bring an apothecary's bill to three pounds in a fever; whereas some of their bills in this disease amount to forty, fifty and sixty pounds."

Boerhaave, nearer to Wesley's time, and in many respects more modern in his treatment than Sydenham, used methods that make Wesley's look like sheer mental suggestion. For apoplexy he bled, used setons and fly blisters, bandages to the extremities, irritating powders to the nose and pharynx in order to "separate the pituita from the blood in the brain and set free the vital spirits," while internally he gave woodlice and cochineal.

For epilepsy he described, but did not recommend, the use of the blood of strangled gladiators or other men, and used from the time of Arataeus to that of Tulpius, whose face, immortalized by Rembrandt, still ornaments medical schools, though his works are never consulted. He also found it necessary to oppose, in the eighteenth century, the use of human livers, the brains of children or the skulls of men dead from violence, saying that what was needed was medicinal aid and not human sacrifices.

That Wesley was no mere collector of recipes, but had his own ideas on medical topics, appears in many instances among the methods of treatment. So, to prevent catching infectious fevers, he warned against breathing near the face of the sick, or swallowing saliva while in the sick room. Flooding in lying-in is "never to be thought little of." He objected to the common advice not to attempt to cure gout, saying he had cured himself many times. He held that madmen are all cowards and "may be conquered by binding only, without beating," anticipating the reform of Pinel by half a century, and the practice of some American asylums much longer. For the bite of a mad dog, for which he gives several simple remedies, he adds with a "pointer": "Immediately consult an honest physician." He says he was bitten six times by mad dogs and cured by squeezing, bathing and washing the wound for an hour with salt water—a pound to the quart—and binding salt on it for twelve hours. He warned against constipation and against catching cold after measles. A statement never too commonplace is, "When the nerves perform their office languidly, a good air is the first requisite." After giving a mixed herb wine for hernia, he adds that a good truss is of great use and perhaps the only thing to be depended on. Scaldhead in children, he said, would seldom be seen if proper regard were paid to cleanliness in the head and apparel. He asserted there were no worms in teeth, and said that coral was "always useless for children, and often hurtful." To prevent flatworms he advised against drinking stagnant water.

Regarding itch, he said: "This is nothing but a kind of very small lice, which burrow under the skin. Therefore, inward medicines are absolutely needless. Is it possible any physician should be ignorant of this"? He advised strong rum, black soap, sulphur, white hellebore and cream, and lemon juice with oil of roses. The answer to his question is a melancholy one, for the itch has a long and not very creditable history. The Greek, Arab and medieval physicians knew the disease. In the middle ages the insect was known and was supposed to be a louse or a weevil. Thomas Moufet, who died in 1600, gave a description of the mite, which had been seen and described by Joseph Scaliger in 1557, and Bonomo rediscovered it in 1687. A century earlier Roudelet described the operation of extracting the insect with a needle. Bonomo and Cestorio gave a clear account of the relation of the mite to the disease and Linnaeus and de Geer described it zoologically; but Wichmann had to repeat Bonomo's arguments in 1787. Nevertheless, leading physicians through all of this period and almost to the middle of the nineteenth century refused to believe in the etiology and ascribed the itch to acrid humors and morbific blood. Gales mystified the French savants with cheese mites in 1812, and it was not until 1834 that Renucci, a Corsican student who learned from old women in his fatherland how to extract the insects

with needles, settled the question in Paris. The male insect was not discovered until 1845, by Kraemer, and Eichstedt a year later first described the eggs in the burrows.

Another interesting evidence of Wesley's advanced point of view is in the frequent use he made, or recommended, of water, internally and externally. In the text he recommends cold baths no less than sixty times, and in the section at the end of the book he gives a summary showing their application to various diseases, from convulsions and insomnia to hydrophobia. The use of baths for the latter—including keeping the patient under water as long as possible—is very old and, of course, baths had been used in medicine long before, but just before or during Wesley's time, they became relatively neglected. Even the enthusiastic reports of Sir John Floyer had little effect on this neglect. Floyer, it will be remembered, introduced the use of the watch in pulse-counting and made important observations on the pulse under various conditions, including its relation to respiration. In 1697 he published "An inquiry into the right use of the hot, cold and temperate baths in England." In 1702 he published his "Psychrolusia," in which he referred the hydriatic treatment of disease to baptism, and ascribed the spread of rickets to the change from baptism by immersion to merely wetting the head. Cheyne and Mead used cold baths and Smith (1721) used them for improving the constitutions of children, and a clergyman, John Hancock, in 1773 recommended them for measles and other fevers. Apparently little influence was exercised by any or all of these writers, while Cullen labored in the profession and Buchan among the laity to extend the use of water, but it is certain that Wesley was aware of their doctrines and preached them with energy. It will be recalled that the proverb "Cleanliness next to Godliness" is his. I think he may have obtained some of his views from the book of Johann Sigmund Hahn, "Die wunderbare Heilkraft des frischen Wassers," Schweidnitz, 1745. It is interesting that Wesley quotes a case related by Floyer without indicating its source, while Hahn gives it more fully, with credit. Wesley makes the brief statement under "A cancer of the breast," "Use the cold bath. (This has cured many.) This cured Mrs. Bates of Leicestershire of cancer of the breast, a consumption, a sciatica and rheumatism, which she had had near twenty years. She bathed daily for a month and drank only water." It is amusing to find that Hawes, one of Wesley's severest critics, doubted the existence of this Mrs. Bates.

Hahn says:

> Mrs. Bates, a woman of 50 years, was consumptive, coughed hard, had pain in the limbs for 20 years, especially sciatica; had immobility and weakness in the knee, sat constantly by the fire, covered with many garments, and could not stand a draft; she had lumbar pain which she thought due to stone and a pain in the breast that was thought to be cancerous. She went to Willowbridge bath, which is very cold, also drank several glasses and so continued for several months. The first time the heart was very painful, later not so much so; with the next bath the pains retracted from the back to the feet, and at last she was perfectly well and without relapse; she walked and ate well, dressed lightly; the stone was gone and also the tumor in the breast. She continued drinking water.

Another case mentioned by both Wesley and Hahn is that of Mrs. Watts, who, by using the cold bath two and twenty times in a month, was entirely cured of an hysteric colic, fits and convulsive motions, continual sweating and vomiting, wandering pains in her limbs and head, with total loss of appetite (164). Hahn describes the patient as weak and hectic. "Medicines and Bath water internally and externally had no effect. She took cold baths in London, bathing every morning, and plunging under water six or seven times before going to bed, and so was cured."

An interesting contrast to Wesley's enthusiasm for water is his extensive use of saliva, especially "fasting spittle," which "outwardly applied relieves or cures blindness, gout, gravel, King's evil, leprosy, palsy, rheumatism, scurvy, stone and swelled liver." This is still in use in Germany, according to Bartels.

In the case of these more extraordinary remedies Wesley was, of course, following old examples, some of which go back to the very beginning of medicine. An instance of this is the "Zibethum occidentale," or stercus humanum, recommended for films over the eyes. Paullini, in the well-known "Heilsame Dreckapotheke," has several chapters devoted to diseases of the eye, such as pain, red and running eyelids and cataract, in which he quotes many contemporaries in such a way as to prove Wesley lacking in appreciation of the world of materia medica literally under his feet.

Another interesting survival is human milk, which was apparently used in wasting diseases in the time of Wesley, though it seems to have been neglected since then.

Wesley's care of his own body is one of the best evidences of his judiciousness in such matters. He is a good example of the truth of the adage: "A man is a fool or a physician at forty." He did not come from a particularly healthy family, and he inherited the family gout. Many of his brothers and sisters died young; he spent his early years in the malarious fen country. Lack of food was no uncommon event in his youth. Nevertheless, he lived to the age of 88 years, and accomplished an amount of physical and mental labor, either of which would be most unusual. Some details of the methods he used to maintain his health, and the work he accomplished, should be considered. He himself ascribed much of his good health to the scheme of life he adopted from Cheyne. Cheyne condemned salt and seasonings, also pork, fish or stall-fed cattle, and recommended for a drink two pints of water and one of wine in twenty-four hours, with 8 ounces of animal and 12 ounces of vegetable food in the same time. Besides what he learned from Cheyne and from the popular medicine of Tissot, Wesley laid stress on his constant exercise and change of air; his never having "lost a night's sleep, sick or well, on land or sea"; "having sleep at command so that he could call it and it came"; to having risen for more than sixty years at 4 a. m., preaching at 5, and having so little pain or sorrow. The account of his early rising is interesting. At one time he was troubled with insomnia, but cured it in the following way: He set back an alarm clock an hour each morning, from seven to four, and when he reached the latter found that he went to sleep at once and slept until four, which he fixed for his rising hour. He was a constant reader, and an indefatigable traveler. He went about much on horseback, reading as he went, and sometimes getting bad falls. At 83 years he traveled 76 miles in a day, and preached three times. At 85 he delivered more than eighty sermons in eight weeks.

Besides gout, which he mentions, he had hemorrhage from the lungs in middle age (50 years), and was

advised by Fothergill to stop preaching, but did not. He also had an operation of some kind, and in 1789 had what he called diabetes. At one time he gave up the use of tea, but resumed it again at Fothergill's advice. The strain of preaching to several thousand people in the open air he never seemed to feel. While he weighed but 122 pounds, his voice could be heard at 140 yards, and he was able to rivet the attention of 8,000, 10,000 or even 20,000 people.

Though he was interested in the health of his people, he had no patience with interesting invalids, valued the services of physicians, and treated the numerous examples of religious hysteria that occurred in his congregations with great skill, having the subjects at once removed out of his sight, where, as he said, they became as quiet as lambs.

It is difficult to say how much influence "Primitive Physic" had. Southey thought it was very great and very pernicious. Judging from medical literature and medical practice it does not now seem to have done much good, and probably very little harm, and this is in contrast to what almost all critics have thought of Wesley's other achievements. Leslie Stephens calls him the greatest captain of men of his time. Macaulay thought he had a genius for government not inferior to that of Richelieu. Southey thought his the most influential mind of the century; Lecky, that his religious revival was of greater historical importance than all the splendid victories by land and sea under Pitt. He has been supposed to be the chief force that saved England from such a revolution as that of France. How could the book of such a man, printed in so many editions, fail to make more of a mark?

We are fortunate in having criticisms of Wesley's book by physicians, published in his lifetime, and at widely different periods after that. The first was by a man of prominence, Dr. W. Hawes, one of the founders of the Royal Humane Society. Hawes' work had the laudable object of preventing the public from being imposed on. He criticized many of the remedies for reasons that we should all agree on, and his criticisms probably had something to do with the absence from the later editions of many methods mentioned in the sixteenth, including the use of powdered toad, which Hawes thought suitable to the credulity of the frequenters of the foundry, and of a red-hot poker under the nose. He criticized Wesley's rather frequent use of wine as tending to encourage "dram-drinking," but he shows some faults of his own in asserting that poultices convert "benign hardnesses" into cancer, ascribed cancers to fermentation and thought that the use of cold baths would convert skin eruptions into internal inflammation or fever; that blisters on the feet from walking would dry up over night, and thought it ridiculous to try to relieve thirst in fever by drinking water. To those who compare the present with the good old days, it may seem interesting to find Hawes objecting to Wesley's "hardening" on the ground that "the state of the population is at too low an ebb for the lives of children to be sacrificed to the ignorance of old women or the indolence of nurses."

Hawes throws light on the conditions of the time when he states that fevers carry off one-third of the human species (Sydenham put the loss at two-thirds), and that in fevers the physician should see the patient twice daily.

Almost a century later Dr. John T. Plummer[1] in a keen but kindly article, based on the twenty-sixth American edition, criticized especially the superstitious remedies, like the guts of a serpent, for bites (omitted from the twenty-ninth edition), but excused them as characteristic of the age, and suggested that we might retain some equally futile remedies, so-called. He even thought that Wesley's use of saliva might be justified by Lehmann's chemical investigations, and mentioned the long use of burnt sponge, now known to contain iodin, as an example of correct empirical therapeutics.

Another and more recent criticism[2] appeared in the *British Medical Journal* as an unsigned article, and apparently, having been "tried on the dog" in England was published under the name of Burton G. Thomas,[3] M.D., in the *American Physician*.

This author thinks the work gives "evidence of a hiatus in the mind of Wesley, natural and inevitable in a theologian of that day, and not unfamiliar even in some of the theological intellects of the present." The article gives evidence of very loose reading and thinking and very little acquaintance with the practice of Wesley's time, but is interesting because it states that the cow dung poultice is still used in England, as it is, or was a few years ago, in certain parts of the United States.

It is clear that we must not compare Wesley's therapeutics with those of his most eminent contemporaries. He did not pretend to special knowledge, but even when we compare his methods with those of physicians, we find a good deal to admire or to excuse. He treated symptoms only, but so did his contemporaries, and if he conceived diseases as foreign entities invading the body, so did most of the physicians of his century. He schematized medicine far too much, but so did many illustrious leaders of medicine. Brown was bad enough, but Röschlaub, one of Brown's most noted followers, Professor at Bamberg, Landshut and Munich, thought all therapeutics so far as recoverable diseases are concerned, could be learned in thirty axioms. The ordinary followers of Brown must have been shocking. So far as symptomatic diagnosis is concerned this has lasted to our own day, for even if we have gone beyond such names as "dropsy" or "fever," there is still a general tendency to be satisfied with the main diagnosis, whether of an infection, like typhoid fever, or pneumonia, or a process like diabetes or gout, and to carry out a schematic treatment, with little or no effort at learning either the peculiar variety of the main disease or the precise anatomic and functional condition of all the important organs.

As to treatment, in general Wesley's was much better than that of his contemporaries, in the sense that though often ridiculous it was rarely harmful. The others, true to their conception of disease as the result or the cause of vicious humors, of acrid blood, of baneful concoctions or fermentations, devastated their patients with violent drugs, bled them to extremitus, salivated them, kept open sores running for weeks or months. Wesley's consumptive, living on milk and breathing into a hole in the turf every day, was infinitely better off than Morton's, and so with many others.

If we cannot censure him for doing harm, can we explain away his failure to improve the practice of

1. Plummer, John T.: Nashville Jour. Med. and Surg., Oct. 4, 1858 (xv), p. 282.
2. Brit. Med. Jour., 1906, i, 987.
3. Thomas, Burton G.: American Physician, November, 1906, p. 295.

his time as he evidently hoped to do? This, I think, is not difficult. If both the moderate and sober words of Sydenham and Cheyne, the violent invectives of Gideon Harvey and Dover had so little effect on the abuses of the period, it was unlikely that one who had so many other prejudices to overcome as Wesley had, could do better. Even at the end of the century the keen and merciless criticism of Hahnemann had but little influence on the crude and barbarous therapeutics of the period. The reason for failure in all cases I take to be the same. All of these would-be reformers, in varying degrees, were hampered by errors of their own; errors that must have been obvious to clear-thinking contemporaries in or out of the profession. All thought about disease in the same way, and all were obliged to do so until the discoveries in anatomy, physiology and chemistry opened a new way of thinking. After the beginning was made in the biologic conception of disease, systems could no longer expect much consideration, no matter how brilliantly they were exploited. And still we can see how many useless mixtures, how many unnecessary drugs, lumber the books and shelves. How many new preparations, no more promising than Wesley's simples, are daily used by the hopeful but credulous profession! And while Wesley's remedies were for the most part harmless nauseants, cathartics, aromatics or demulcents, the newer remedies are likely to be habit-forming, blood-destroying or anaphylaxis-producing, or in other ways distinctly harmful. Modern methods have even enlarged the field of practice once met by Wesley's little book with its simple guide. Wholesale drug houses have dozens of clerks who receive basketfuls of letters from physicians asking for help in trying cases. The diagnosis is no more accurate than in the case of Wesley's reader. The drug clerk advises the first remedy in his list, and if that does not bring results, the next, and so on. Among the laity the belief in medicines as exorcisers of disease seems almost as firmly fixed as ever. The strange or obscure, the alleged inventions of ignorant or savage people, appeal to them more strongly than the rational measures of the skilled and educated. The doctrines of Still have appealed to many more people than have the candid and reasonable recommendations of Weir Mitchell.

Still more interesting is Wesley's relation to superstitious or occult methods. Wesley was a child of his age in many ways. He was able to see the rational features in the practice of the best men of his time, like Sydenham, Cheyne, Floyer and Fothergill, but at the same time he was saturated with superstitions that go back to the earliest legends of medicine or that can be found among the most primitive races.

Thoroughly as he believed in some mystic forms of treatment, and firmly as he believed in the supernatural as he viewed it, he did not mix his medicine with religion, for his recommendation of prayer in treatment is very mild. It remained for the age of the greatest discoveries in natural science, and the period of the most rampant materialism and so-called rationalism, to develop the most varied and extreme methods of superstitious therapeutics, and to revive, without improvement, under the name of "New Thought," methods familiar thousands of years ago.

Preventogram.—Why pay for oxygen when you can get unlimited supplies by simply opening the windows?—*Buffalo Sanitary Bull.*

THE COMPARATIVE NUTRIENT VALUE OF COD LIVER OIL AND COD LIVER OIL CORDIALS

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For a long time cod liver oil has been recognized as an easily assimilable nutrient and reconstructive and of special value in wasting diseases. The unpalatability of the oil, however, has led to various devices to make it tasteless or to render it more acceptable to the stomach. Emulsions containing the oil in mixture with other substances were exploited, and doubtless served a useful purpose. The oil, however, but imperfectly concealed, was still disagreeable to many, and other preparations began to appear on the market, which claimed to retain the therapeutic virtues of cod liver oil without its disagreeable characteristics. This practice has been carried so far that now we find for sale cod liver oil preparations from which the oil has been removed in its entirety, and only the name remains. Certain of these products claim to "represent" the oil and to retain all its virtues; others are said to contain oil, while still others claim "all the valuable constituents" of the oil without the oil itself.

In the past, cod liver oil has been considered a food rather than a medicine, and its value attributed to the easily digestible and metabolizable oil it contains. This position, however, has been disputed. By some its therapeutic value has been attributed to the small amount of iodin present in the oil, but in recent years the suggestion has been made that its special potency depends on its peculiar fatty acids. In this connection the U. S. Dispensatory[1] says:

> Other oleaginous substances, certainly not less nutritious, have not been equally efficient, though taken in much larger quantities. If this be the true explanation, persons living chiefly on milk, which abounds in oil, or on fat pork, ought to show a special exemption from scrofulous complaints. The probability appears to us to be that, in consequence of some peculiar principle or principles it contains, it exercises a stimulant and alterative influence on the processes of assimilation and nutrition, thereby aiding in the production of healthy tissue.

Indeed, Osborne and Mendel[2] have shown in their experiments on albino rats that by substituting cod liver oil for a portion of the lard in their standard diets, growth was resumed after failure on foods containing commercial lard alone as the source of fat. Similar results were secured with butter-fat and egg yolk fat.

In the light of the theories advanced for the therapeutic value of cod liver oil, and the results secured by Osborne and Mendel with the oil itself, it seemed a profitable study to examine some of the prominent "oilless" preparations on the market to determine whether or not the claims made for them as nutrients were justified. Certain of the so-called cod liver oil preparations are termed "extracts" of cod liver oil, and are not made from the oil, but from the cod livers instead. As has been well said,[3] "They are preparations, which, if honestly made, might be worthy of trial, but they are improperly called 'extracts' of cod

1. U. S. Dispensatory, Ed. 19, p. 860.
2. Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1914, xvii, 401.
3. Fraud and Deception Connected with So-Called Cod Liver Oil Preparations, THE JOURNAL A. M. A., Oct. 13, 1906, p. 1207.

liver oil, since they do not contain the fat, which is the active constituent of the oil, but the extractives from the liver, which may or may not possess therapeutic virtues. So far as we know, however, no satisfactory evidence is forthcoming to indicate that such extractives have any therapeutic value."

It was with preparations of this class that our experiments were made. Four of the more extensively advertised brands were selected, as they represent rather distinct types of this class of products, as the following claims of their labels will show:

Hagee's Cordial of the Extract of Cod Liver Oil, Compound.—"Tonic, stimulant, alterative, reconstructive, nutritive and digestive." "Each fluid ounce represents the extract obtainable from ⅓ fluid ounce of cod liver oil (the fatty portion being eliminated), 6 grs. calcium hypophosphite, 3 grs. sodium hypophosphite, ½ gr. salicylic acid (made from oil wintergreen), with glycerine and aromatics."

Vinol.—"The modern tonic reconstructor containing the medicinal extractives of fresh cod livers with peptonate of iron." "When the blood is poor, when more fresh blood is needed, when the weak need strength, when the throat and lungs are affected, TAKE VINOL."

Wampole's Perfected and Tasteless Preparation of an Extract of Cod Liver.—"Contains a solution of an extractive obtainable from fresh cod livers, the oily or fatty portion being afterward eliminated. This extractive is combined with liquid extract of malt, fluid extract of wild cherry and compound syrup of hypophosphites (containing calcium, sodium, potassium, iron, manganese, quinine and strychnine)."

Waterbury's Compound, Plain.—"Made from cod liver oil, digestive ferments, malt extract unfermented, hypophosphites comp. special, ext. cherry, eucalyptus, aromatics, etc."

Thus we have represented in our experiments an "extract" with hypophosphites, one with peptonate of iron, one with malt extract and hypophosphites and the alkaloids quinin and strychnin, and one with malt extract and hypophosphites without alkaloids.

In order to prepare a dry ration of suitable keeping properties, it was necessary to remove the alcohol and water from the various preparations. This was done by evaporation under reduced pressure at from 40 to 55° C. (104 to 131 F.). In the case of Hagee's Cordial it was claimed that one fluidounce of the preparation represented ⅓ fluidounce of cod liver oil, and in the subsequent substitution for cod liver oil in our rations, this ratio was used for all four products.

The composition of the four preparations was as shown in Table 1.

It is seen that these are very dissimilar preparations, the alcohol ranging from 7.50 to 18.69 per cent., the extract from 8.72 to 39.53 per cent. (10.81 of the 13.18 gm. of extract in Hagee's Cordial being glycerin), the ash from 0.305 to 1.967 per cent., the reducing sugars from 1.35 to 17.10 per cent., and the glycerin from a trace to 10.81 per cent. Wampole's contained quinin and strychnin, the others no alkaloids; salicylates were present in all but Wampole's; saccharin in Hagee's. The Pettenkoffer test for biliary acids gave a negative result in Hagee's and Wampole's; in Vinol and Waterbury's, small amounts of fatty acids were obtained, amounting to 0.016 and 0.032 gm. per hundred c.c., respectively, quite insignificant amounts.

The feeding experiments were made on albino rats of both sexes, which were placed, when about 6 weeks old, on a standard ration, No. 7, and after several months, when a failure to maintain weight was indicated,[4] an amount of dealcoholized cordial extract

TABLE 1.—ANALYSES OF COD LIVER OIL PREPARATIONS

	Hagee	Vinol	Wampole's	Waterbury's
Specific gravity at 15.6 C.	1.0405	1.0111	1.1305	1.0499
Alcohol by volume	7.50	18.69	16.59	11.25
Extract, gm. per 100 c.c.	13.18*	8.72	39.53	16.78
Ash, gm. per 100 c.c.	1.967	0.885	0.305	0.673
Phosphoric acid, gm. per 100 c.c.	1.363	0.090	0.158	0.092
Sodium oxid, gm. per 100 c.c.	Present	0.194	Present	0.115
Potassium oxid, gm. per 100 c.c.	—	0.141	Present	0.045
Calcium oxid, gm. per 100 c.c.	Present	Trace	Present	0.014
Iron oxid, gm. per 100 c.c.	Present	0.240	Present	Trace
Manganese oxid	None	—	Present	—
Nitrogen, gm. per 100 c.c.	—	0.350	—	0.178
Reducing sugars, as dextrose, gm. per 100 c.c.	1.35	3.32	17.10	9.72
Glycerin, gm. per 100 c.c.	10.81	0.323	—	0.812
Ether-chloroform extract, acid, gm. per 100 c.c.	0.142	0.187	0.054	0.713
Ether-chloroform extract, alkaline, gm. per 100 c.c.	0.004	0.010	0.003	0.006
Fatty acids, gm. per 100 c.c.	None	0.016	None	0.032
Salicylic acid, gm. per 100 c.c.	Present	0.035	—	0.546
Saccharin	Present	—	—	—
Alkaloids	None	None	Quinin Strychnin	None
Acidity, c.c.N/10 NaOH per 100 c.c.	39.4	55.0	22.0	28.5
Polarization, direct	−0.6†	−2.1‡	−1.6†	+3.7‡
Polarization, invert.	−0.22†	−2.2‡	−3.08†	+3.85‡

* 10.81 gm. glycerin. † At 19 C. ‡ At 23.5 C. A minus (—) sign indicates that the determination was not made.

equivalent to 18 per cent. of cod liver oil was substituted for a portion of the lard, the cordial extract later being replaced by an equivalent amount of cod liver oil.

THE RATIONS USED

The rations fed to the rats were as indicated in Table 2.

TABLE 2.—RATIONS FED THE RATS

	Per cent.		Per cent.
RATION 7 (STANDARD)		RATION 8 (HAGEE'S)	
Corn gluten	25.3	Corn gluten	25.5
Milk albumin	11.0	Milk albumin	11.0
Commercial protein-free milk	23.3	Commercial protein-free milk	23.5
Corn-starch	10.7	Corn-starch	10.5
Lard	29.7	Lard	17.7
		Hagee's (extract)	11.8
RATION 10 (VINOL)		RATION 11 (WATERBURY)	
Corn gluten	25.5	Corn gluten	25.5
Milk albumin	11.0	Milk albumin	11.0
Commercial protein-free milk	23.5	Commercial protein-free milk	23.5
Corn-starch	10.5	Corn-starch	10.5
Lard	23.9	Lard	17.6
Vinol (extract)	5.6	Waterbury (extract)	11.9
RATION 12 (WAMPOLE'S)		RATION 13 (COD LIVER OIL)	
Corn gluten	25.5	Corn gluten	25.5
Milk albumin	11.0	Milk albumin	11.0
Commercial protein-free milk	23.5	Commercial protein-free milk	23.5
Corn-starch	10.5	Corn-starch	14.0
Lard	4.1	Lard	8.0
Wampole (extract)	25.4	Cod liver oil	18.0

The corn gluten contained 7.69 water, 0.14 ash, 6.63 nitrogen, 4.24 nitrogen soluble in hot alcohol (= zein 28.85), 12.63 other proteins by difference,

4. Osborne and Mendel have shown (Jour. Biol. Chem., 1913, xv, 311) that mixtures of purified protein, lard, starch and protein-free milk have been singularly efficient for a time in promoting growth of young rats. In from sixty to 100 days or more, however, normal growth stops; the animals may remain at constant weight for a few days, or grow very slowly, and then suddenly decline and die unless a change is made in the diet. The substitution of butter-fat, egg yolk fat, or cod liver oil for a portion of the lard in the ration, in the experiments of these authorities, brought prompt recovery and continuation of normal growth.

41.48 total protein and 4.83 per cent. fat. The milk albumin contained 4.69 water, 22.01 ash, 8.85 nitrogen (= 56.46 protein), 1.03 fat and 18.81 per cent. lactose. The commercial protein-free milk was crude milk-sugar. Before use in the rations, the corn gluten was thoroughly extracted with ether to remove the fat.

In all, nineteen rats were used, five each with Vinol and Wampole's, six with Hagee's, and three with Waterbury's. Rats 19 and 27 on Hagee's, Rat 31 on Vinol and Rat 32 on Wampole's showed certain abnormalities during the experiment, and are excluded from the present discussion.

The rats at first were weighed weekly, but later twice a week, or oftener, when a marked change in weight seemed imminent. It is unnecessary to give the detailed weights of the rats when on the standard ration, especially as in some cases they were kept on this ration for over four months. Only enough of the weighings on the standard ration will be given to show the steady increase in weight of the rats, until the approach of a change in the ration, when the semi-weekly weighings will be shown. In general no change in the ration was made until two successive weighings showed a distinct loss of weight. There were certain exceptions to this rule which will be noted in the proper place.

HAGEE'S CORDIAL

The results secured with Hagee's Cordial are given in Table 3.

TABLE 3.—RATION 7 (STANDARD), RATION 8 (HAGEE), RATION 13 (COD LIVER OIL)*

Rat 28 ♂			Rat 29 ♂			Rat 33 ♀			Rat 34 ♀		
	Weight			Weight			Weight			Weight	
Age, Days	Normal, Gm.	Actual, Gm.	Age, Days	Normal, Gm.	Actual, Gm.	Age, Days	Normal, Gm.	Actual, Gm.	Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration			Standard Ration			Standard Ration			Standard Ration		
37	48	44.5	37	48	38.7	37	49	38.7	37	49	39.1
51	77	58.4	51	77	54.0	51	74	57.0	51	74	61.5
65	110	64.2	65	110	61.5	65	95	71.5	65	95	79.2
79	134	73.7	79	134	63.8	79	104	86.3	79	104	84.2
93	154	100.3	93	154	79.9	93	116	111.0	93	116	116.0
107	169	129.2	107	169	94.8	107	123	116.4	107	123	133.3
121	185	153.5	114	176	106.3	121	133	130.0	121	133	149.5
135	198	165.0	117	180	104.4	124	134	127.8	135	141	159.6
149	204	180.0	121	185	103.5	128	137	131.0	142	147	156.4
152	205	187.7				131	138	131.2	146	148	163.7
156	207	180.7	Hagee Ration						149	149	162.3
159	209	180.6	124	188	95.4	Hagee Ration			152	150	161.8
Hagee Ration			128	192	91.1	135	141	131.7			
163	212	179.7				138	144	132.2	Hagee Ration		
166	214	165.2	Cod Liver Oil Ration			142	147	130.4	156	151	154.7
			131	194	102.1	145	148	130.0	159	152	154.6
Cod Liver Oil Ration			138	201	114.8						
			145	203	111.7	Cod Liver Oil Ration			Cod Liver Oil Ration		
170	218	160.0	152	205	116.6						
177	223	167.2	159	209	140.6	152	150	147.9	166	155	159.6
184	227	150.0	166	214	150.5	159	152	156.8	173	159	159.8
193	229	157.0	173	220	157.4	166	155	157.7	180	160	162.0
201	245	171.3	177	227	165.4	173	159	157.1	187	163	157.6
208	251	190.2				180	160	157.1	193	165	158.6
215	259	201.1							198	167	159.5
219	263	206.6							205	168	165.1
									212	169	163.9
									219	170	168.2

* In the tables, ♂ denotes male, and ♀ female.

None of the four rats did well on Hagee's Cordial; in fact, they lost from 1.2 to 15.4 gm. during feeding periods of from seven to fourteen days. With Rat 33 there was a slight temporary gain of 1 gm. during one week, where normally the gain should have been 6 gm., but even this small gain was overcome during the next week by a loss of 2.2 gm. The rats failed so quickly when put on Hagee's Cordial that in two cases the animals did not recover even when put on the full cod liver oil ration. Our experience with these two rats prompted us not to allow the other rats to remain too long on the Hagee ration, and the shift in diet was made somewhat sooner than would normally have been the case; in fact, with Rat 33 a slight gain in weight was evidenced just before the shift was made.

The following tabulation summarizes the results obtained by feeding the Hagee ration:

Rat 28 in 7 days lost 15.4 gm., or 8.5 per cent. of its weight
Rat 29 in 7 days lost 12.4 gm., or 12.0 per cent. of its weight
Rat 33 in 14 days lost 1.2 gm., or 0.9 per cent. of its weight
Rat 34 in 7 days lost 7.2 gm., or 4.5 per cent. of its weight

The gains made when cod liver oil was substituted for Hagee's Cordial were as follows:

Rat 28 in 53 days gained 41.4 gm., or 25.1 per cent. of its weight
Rat 29 in 49 days gained 74.3 gm., or 81.6 per cent. of its weight
Rat 33 in 35 days gained 27.1 gm., or 20.8 per cent. of its weight
Rat 34 in 60 days gained 13.6 gm., or 8.8 per cent. of its weight

Inasmuch as the feeding periods were of different duration, the effect of the two rations is better shown by a comparison of the normal gain the animals should have made during the feeding periods with that actually obtained. This is shown in Table 4.

TABLE 4.—COMPARISON OF NORMAL GAIN WITH ACTUAL GAIN ON HAGEE RATION AND COD LIVER OIL

Rat	Hagee Ration		Cod Liver Oil Ration	
	Normal Gain, Gm.	Actual Gain, Gm.	Normal Gain, Gm.	Actual Gain, Gm.
28 ♂	5	—15.4	49	41.4
29 ♂	7	—12.4	35	74.3
33 ♀	10	— 1.2	12	27.1
34 ♀	2	— 7.2	18	13.6

In other words, the four rats during the *Hagee* period, instead of gaining the normal 24 gm., actually lost 36.2 gm., while during the cod liver oil period instead of gaining 114 gm., they gained 156.4 gm.

The inferiority of Hagee's Cordial as a reconstructive and a nutrient compared with ordinary cod liver oil is apparent.

VINOL

The results secured with Vinol are given in Table 5.

TABLE 5.—RATION 7 (STANDARD), RATION 10 (VINOL), RATION 13 (COD LIVER OIL)

Rat 17 ♀			Rat 18 ♀			Rat 21 ♀			Rat 30 ♂		
	Weight			Weight			Weight			Weight	
Age, Days	Normal, Gm.	Actual, Gm.	Age, Days	Normal, Gm.	Actual, Gm.	Age, Days	Normal, Gm.	Actual, Gm.	Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration			Standard Ration			Standard Ration			Standard Ration		
41	55	46.7	41	55	49.5	41	55	52.7	37	48	37.5
55	81	64.5	55	81	69.3	55	81	73.9	51	77	46.8
69	98	79.5	69	98	87.2	69	98	83.8	65	110	57.2
83	107	87.6	83	107	97.3	83	107	90.4	79	134	63.1
97	118	105.7	97	118	119.7	97	118	106.8	93	154	85.5
111	126	122.1	111	126	135.8	111	126	117.0	107	169	112.1
125	135	132.1	125	135	151.0	125	135	129.5	121	185	139.7
128	137	135.4	128	137	151.6	139	145	137.9	135	198	160.6
132	139	135.2	132	139	151.2	142	147	136.4	145	203	170.0
Vinol Ration			Vinol Ration			146	148	134.3	149	204	169.4
135	141	136.1	135	141	151.7	149	149	138.0	152	205	170.5
139	145	140.0	139	145	155.9	Vinol Ration			Vinol Ration		
142	147	141.5	146	148	159.0	156	151	140.0	156	207	167.8
146	148	140.8	153	151	156.7	163	153	139.5	159	209	168.3
149	149	140.3	154	151	157.2	170	158	138.7	163	212	164.6
Cod Liver Oil Ration			Cod Liver Oil Ration			177	160	139.7	Cod Liver Oil Ration		
153	151	140.9	156	152	160.9	184	162	130.0	166	214	179.2
160	152	158.8	160	152	172.6	Cod Liver Oil Ration			170	218	188.8
167	156	163.7	167	156	174.6	188	164	124.1	173	220	189.8
174	159	167.3	174	159	175.1	191	165	114.1	177	223	198.8
						197	167	105.3	180	226	200.5
						205	168	108.6			
						212	169	119.2			
						219	170	135.6			
						223	172	136.7			

The four rats fed the Vinol ration gave somewhat more favorable results than those fed Hagee's Cordial, two showing slight gains in weight. Rat 21, however, was apparently weakened by Vinol, as it required thirty-five days of feeding the cod liver oil ration to bring it back to the weight shown prior to the Vinol feeding.

The following tabulation summarizes the results obtained by feeding the Vinol ration:

Rat 17 in 17 days gained 5.1 gm., or 3.8 per cent. of its weight
Rat 18 in 22 days gained 6.0 gm., or 4.0 per cent. of its weight
Rat 21 in 35 days lost 8.0 gm., or 5.8 per cent. of its weight
Rat 30 in 11 days lost 5.9 gm., or 3.5 per cent. of its weight

The gains made when cod liver oil was substituted for Vinol were as follows:

Rat 17 in 25 days gained 27.0 gm., or 19.9 per cent. of its weight
Rat 18 in 20 days gained 17.9 gm., or 11.4 per cent. of its weight
Rat 21 in 39 days gained 6.7 gm., or 5.2 per cent. of its weight
Rat 30 in 17 days gained 35.9 gm., or 21.8 per cent. of its weight

The feeding periods during which Vinol and cod liver oil were supplied to the rats were more nearly equal than with the Hagee ration, and a direct comparison is possible. However, Table 6 shows a comparison between the normal and actual gains of the animals for the different feeding periods.

TABLE 6.—COMPARISON OF NORMAL GAIN WITH ACTUAL GAIN ON VINOL RATION AND COD LIVER OIL

Rat	Vinol Ration		Cod Liver Oil Ration	
	Normal Gain, Gm.	Actual Gain, Gm.	Normal Gain, Gm.	Actual Gain, Gm.
17 ♀	10	3.8	10	27.0
18 ♀	12	4.0	8	17.9
21 ♀	13	−5.8	10	6.7
30 ♂	7	−3.5	14	35.9

TABLE 7.—RATION 7 (STANDARD), RATION 12 (WAMPOLE), RATION 13 (COD LIVER OIL)

Rat 26 ♀			Rat 35 ♂			Rat 36 ♂			Rat 37 ♀		
	Weight			Weight			Weight			Weight	
Age, Days	Normal, Gm.	Actual, Gm.	Age, Days	Normal, Gm.	Actual, Gm.	Age, Days	Normal, Gm.	Actual, Gm.	Age, Days	Normal, Gm.	Actual, Gm.
Standard Ration			Standard Ration			Standard Ration			Standard Ration		
41	55	54.1	47	68	69.3	47	68	60.0	47	67	57.3
55	81	71.3	61	101	79.1	61	101	66.3	61	90	68.2
69	98	84.2	75	129	96.5	75	129	84.0	75	102	80.3
83	107	92.8	89	149	122.8	89	149	125.5	89	113	99.2
97	118	121.1	103	163	162.8	103	163	157.6	103	121	114.8
111	126	141.0	117	180	191.0	117	180	180.3	117	131	1.9.7
125	135	154.2	131	195	208.9	131	195	196.0	131	139	137.8
128	137	156.8	145	203	211.0	134	197	197.6	145	148	149.0
132	139	157.0	148	204	213.3	138	200	196.2	148	149	142.8
			152	205	211.2	141	202	196.2	152	150	143.0
Wampole Ration			155	207	209.3				155	151	139.8
135	141	151.3				Wampole Ration					
139	145	154.5	Wampole Ration			148	204	202.9	Wampole Ration		
142	147	160.3	162	211	220.0	155	207	210.1	162	153	150.0
146	148	165.0	169	217	227.6	162	211	223.4	169	157	156.7
149	149	160.0	176	223	235.0	169	217	227.6	176	159	160.0
150	150	160.0	183	227	230.1	176	223	214.1	183	161	163.3
			186	231	228.9	180	226	196.7	186	164	171.7
Cod Liver Oil Ration			192	238	222.3				192	165	169.9
156	152	172.8	194	240	223.0	Cod Liver Oil Ration			194	166	174.0
163	153	178.6				183	227	212.6			
170	158	191.3	Cod Liver Oil Ration			189	231	214.3	Cod Liver Oil Ration		
177	160	193.8	201	245	229.7	197	242	212.2	201	168	190.5
			204	248	244.7	204	248	214.9	208	169	190.7
			208	251	233.5	211	255	219.0	215	170	192.5
			211	255	229.1	215	259	219.8			

In other words, the four rats instead of gaining the normal 42 gm. during the Vinol period, actually showed a net loss of 1.5 gm., while during the cod liver oil period instead of gaining 42 gm., they gained 87.5 gm.

The foregoing results show the superiority of ordinary cod liver oil over Vinol, "the modern tonic reconstructor," and that "when more flesh is needed, when the weak need strength," these results are much more effectively secured with the oil itself.

WAMPOLE'S PREPARATION

The results secured with Wampole's Preparation are given in Table 7.

All of the four rats fed the Wampole Preparation showed gains in weight although in two cases the gains were quite insignificant. Rat 36 showed substantial gains during the period, but during the last eleven days suddenly lost 30.9 gm., and was then shifted to the cod liver oil ration, when in three days it recovered 15.9 gm. of this loss. Rat 37 was shifted to the cod liver oil ration before two distinct failures to gain had been shown under the Wampole ration, but in the first week under cod liver oil it gained 16.5 gm., more than it had gained in eighteen days with the Wampole ration. The Wampole Preparation showed a much greater ability to sustain or gain weight than either Hagee's or Vinol.

The following tabulation summarizes the results obtained by feeding the Wampole ration:

Rat 26 in 18 days gained 3.0 gm., or 1.9 per cent. of its weight
Rat 35 in 39 days gained 13.7 gm., or 6.5 per cent. of its weight
Rat 36 in 39 days gained 0.5 gm., or 0.3 per cent. of its weight
Rat 37 in 39 days gained 34.2 gm., or 24.5 per cent. of its weight

The gains made when cod liver oil was substituted for the Wampole Preparation were as follows:

Rat 26 in 27 days gained 33.8 gm., or 21.1 per cent. of its weight
Rat 35 in 17 days gained 6.1 gm., or 2.7 per cent. of its weight
Rat 36 in 35 days gained 23.1 gm., or 11.7 per cent. of its weight
Rat 37 in 21 days gained 18.5 gm., or 10.6 per cent. of its weight

The feeding periods during which the Wampole Preparation was given were considerably longer than those during which cod liver oil was fed. Table 8 shows a comparison between the normal and actual gains of the animals for the different feeding periods.

TABLE 8.—COMPARISON OF NORMAL GAIN WITH ACTUAL GAIN ON WAMPOLE RATION AND COD LIVER OIL

Rat	Wampole Ration		Cod Liver Oil Ration	
	Normal Gain, Gm.	Actual Gain, Gm.	Normal Gain, Gm.	Actual Gain, Gm.
26 ♀	11	3.0	10	33.8
35 ♂	33	13.7	15	6.1
36 ♂	24	0.5	33	23.1
37 ♀	15	34.2	4	18.5

In other words, the four rats on the Wampole ration gained 51.4 gm. instead of the normal 83 gm., while during the cod liver oil period they gained 81.5 gm. instead of the normal 62 gm.

It would appear that the malt extract or the sugar present in Wampole's Preparation had increased its nutritive value over Hagee's Cordial and Vinol, *but even with this addition it fell far behind ordinary cod liver oil as a source of nutriment.*

WATERBURY'S COMPOUND

The results secured with Waterbury's Compound are given in Table 9.

Two of the rats when fed the Waterbury ration showed slight gains in weight, but the third lost 13.4 gm. in two weeks. With none of these rats was a

marked failure secured on the standard ration at the time of the shift to the Waterbury ration. They had rather ceased to grow instead of showing a distinct loss in weight. Rat 22 had gained but 2.6 gm. in seven days, Rats 23 only 2.2 gm. in eight days, and Rat 25 only 0.6 gm. in ten days, whereas they should have gained 4 gm. in each case. Likewise no very distinct

TABLE 9.—RATION 7 (STANDARD), RATION 11 (WATERBURY), RATION 13 (COD LIVER OIL)

Rat 22 ♀			Rat 23 ♀			Rat 25 ♀		
Age, Days	Normal Weight Gm.	Actual Weight Gm.	Age, Days	Normal Weight Gm.	Actual Weight Gm.	Age, Days	Normal Weight Gm.	Actual Weight Gm.
Standard Ration			Standard Ration			Standard Ration		
41	55	58.7	40	54	46.6	41	55	52.7
55	81	78.9	54	79	63.9	55	81	73.1
69	98	96.1	68	97	79.7	69	98	89.3
83	107	103.5	82	107	99.2	83	107	98.5
97	118	120.5	96	118	112.3	97	118	112.0
111	126	130.2	110	125	121.7	111	126	126.6
125	135	140.7	124	135	134.0	125	135	135.0
127	136	140.0	127	136	137.5	129	145	143.6
131	138	141.0	131	138	136.0	142	147	145.0
132	139	143.3	132	139	136.2	146	148	144.2
						149	149	144.2
Waterbury Ration			Waterbury Ration			Waterbury Ration		
134	141	135.8	134	141	131.0	153	151	129.9
138	144	131.1	138	144	129.3	156	152	134.9
141	146	134.4	141	146	134.4	160	152	135.4
145	148	133.5	145	148	134.2	163	153	130.8
148	149	135.0	148	149	138.5			
152	150	140.6	152	150	140.0	Cod Liver Oil Ration		
155	151	145.4	155	151	142.2	167	156	152.3
159	152	146.5	159	152	145.2	170	158	158.9
162	153	147.9	162	153	145.3	174	159	171.7
						177	160	174.4
Cod Liver Oil Ration			Cod Liver Oil Ration			181	161	175.8
169	157	155.7	169	157	155.0			
176	160	160.3	176	160	159.9			
183	161	155.4	183	161	159.9			
190	164	158.6	190	164	160.0			
196	165	158.6	196	166	161.6			
201	168	158.1	204	168	164.0			
208	169	162.0	211	169	165.9			
215	170	161.4	218	170	172.1			
222	170	163.5						

failure on the Waterbury ration had been shown when the rats were changed to cod liver oil, although the good effect of the change was noticeable at once in gains of 7.8, 10.3 and 28.1 gm., respectively, in one week. In other words, the rats in one week gained on cod liver oil much more than they did in the full feeding periods of from fourteen to thirty days on the Waterbury ration.

The following tabulation summarizes the results obtained by feeding the Waterbury ration:

Rat 22 in 30 days gained 4.6 gm., or 3.2 per cent. of its weight
Rat 23 in 30 days gained 9.1 gm., or 6.7 per cent. of its weight
Rat 25 in 14 days lost 13.4 gm., or 9.3 per cent. of its weight

The gains when cod liver oil was substituted for the Waterbury Compound were as follows:

Rat 22 in 60 days gained 15.6 gm., or 10.5 per cent. of its weight
Rat 23 in 56 days gained 26.8 gm., or 18.4 per cent. of its weight
Rat 25 in 18 days gained 45.0 gm., or 34.4 per cent. of its weight

Table 10 shows a comparison between the normal and actual gains of the animals for the different feeding periods.

TABLE 10.—COMPARISON OF NORMAL GAIN WITH ACTUAL GAIN ON WATERBURY RATION AND COD LIVER OIL

Rat	Waterbury Ration		Cod Liver Oil Ration	
	Normal Gain, Gm.	Actual Gain, Gm.	Normal Gain, Gm.	Actual Gain, Gm.
22 ♀	14	4.6	17	15.6
23 ♀	14	9.1	17	26.8
25 ♀	4	—13.4	8	45.0

In other words, the three rats on the Waterbury ration showed a net gain of 0.3 gm. instead of the normal 32 gm., while during the cod liver oil period they gained 87.4 gm. instead of the normal 42 gm.

Even the presence of malt extract failed to increase appreciably the nutritive value of the Waterbury Compound, cod liver oil again showing a very marked superiority as a source of nutriment.

SUMMARY

Table 11 gives a summary of the actual gains of the fifteen rats on the four rations, compared with the gains shown by cod liver oil and those shown by normal rats at the same period of their life history.

TABLE 11.—SUMMARY OF RESULTS*

Rations	Total Normal Gain, Gm.	Total Actual Gain, Gm.	Average Normal Gain, Gm.	Average Actual Gain, Gm.
Hagee ration	24	—36.2	6	—9.1
Cod liver oil ration	114	156.4	28.5	39.1
Vinol ration	42	—1.5	10.5	—0.4
Cod liver oil ration	42	87.5	10.5	21.9
Wampole ration	83	51.4	20.8	12.9
Cod liver oil ration	62	81.5	15.5	20.4
Waterbury ration	32	0.3	10.7	0.1
Cod liver oil ration	42	87.4	14	29.1

* In this table are given the totals and averages of the figures already presented in Tables 4, 6, 8 and 10.

In considering the effect of these preparations as general medicines, their alcohol content must not be overlooked. Hagee's Cordial contains 7.50 per cent. of alcohol by volume, Vinol 18.60 per cent., Wampole's Preparation 16.59 per cent., and Waterbury's Compound 11.25 per cent. Full strength whisky contains 50 per cent. of alcohol by volume. By following the doses prescribed by the manufacturers of these preparations, the user would consume daily the following equivalents of full strength whisky:

In Hagee's Cordial..... 0.24 fluidounce
In Vinol..... 0.8 fluidounce
In Wampole's Preparation... 0.7 fluidounce
In Waterbury's Compound... 0.6 fluidounce

These amounts of alcohol are by no means negligible and doubtless explain to a considerable extent the source of the alleged tonic virtues of these preparations.

The results of the experiments may be summarized as follows:

Hagee's Cordial failed to sustain rats during periods of seven and fourteen days, the rats showing a loss in weight of 36.2 gm., instead of the normal gain of 24 gm.

Vinol in two cases sustained and in two cases failed to sustain growth during periods of from eleven to thirty-five days, the net loss in weight of the four rats being 1.5 gm., instead of the normal gain of 42 gm.

Wampole's Preparation in three cases sustained and in one case promoted growth in rats during periods of eighteen and thirty-nine days, showing, however, only 51.4 gm. gain in weight instead of the normal 83 gm.

Waterbury's Compound in two cases sustained and in one case failed to sustain rats during periods of fourteen and thirty days, the net gain in weight, however, being but 0.3 gm. instead of the normal 32 gm.

Cod liver oil showed a gain of 42.4 gm. over the normal, while with the same rats Hagee's Cordial

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showed a loss of 60.2 gm. Cod liver oil showed a gain of 45.5 gm. over the normal, while with the same rats Vinol showed a net loss of 43.5 gm. Cod liver oil showed a gain of 19.5 gm. over the normal, while with the same rats Wampole's Preparation showed a loss of 31.6 gm. Cod liver oil showed a gain of 45.4 gm. over the normal, while with the same rats Waterbury's Compound showed a net loss of 31.7 gm.

Not only did cod liver oil show a marked superiority as a source of nutriment over Hagee's Cordial, Vinol, Wampole's Preparation and Waterbury's Compound, but it also showed a remarkable reconstructive and recuperative power in its ability to enable rats to gain weight rapidly and steadily after having suffered from a deficiency in nutriment when fed the four preparations named above.

I wish to express my appreciation of the courtesies extended to me by my colleagues, Dr. T. B. Osborne, Prof. L. B. Mendel, Dr. A. J. Wakeman and Miss Edna L. Ferry in conducting these experiments. To Mr. Hugo Lange my thanks are also due for his efficient assistance in the care, feeding and weighing of the animals.

SYMPTOMS AND SIGNS OF GASTRIC CANCER: AN ANALYSIS OF 712 CONSECUTIVE OPERATIVELY AND PATHOLOGICALLY PROVED CASES *

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The material forming the basis of this report was obtained from my records of cases at the Mayo Clinic and my service at Augustana Hospital, Chicago. Of the 712 cases studied, all had been operatively and pathologically proved to be gastric cancer. Doubtful cases were excluded.

Sex.—The sex ratio was approximately that of gastric ulcer; namely, 483 males and 229 females, or 2.1 to 1.

Age.—While instances were recorded at as low as 20 years, the age of more than three-fourths of the patients ranged between the fifth and the eighth decades.

Etiologic Factors.—A family or blood-relationship history was proved in 9.4 per cent. of cases. A history of trauma was demonstrated in 3.1 per cent. of instances. In 2.2 per cent. the trauma appeared to precipitate symptoms.

With respect to *definite symptomatology*, it is well to admit here that 1.9 per cent. of cases gave absolutely no symptoms pointing to our clinical conception of gastric cancer. In such instances, exploratory operation or post-mortem examination gave the diagnosis.

Another appropriate admission is that we have no proved clinical procedure, other than history taking, which enables us to make early diagnosis of gastric cancer. Our so-called "early diagnoses" are usually lucky guesses, or are incidents in gastric exploration. The only dependable early diagnosis is made after laparotomy by a capable surgical pathologist by means of sections of tissue stained and examined under high power.

Information obtained by means of the Roentgen ray, by the estimation of the formol index, by the Wolff-Junghans' test or by the edestin digestion test, sometimes is of aid in *excluding cancer* in its early stage, but is of relatively little value in determining for us the presence of the earliest type of cancer—the cancer which we can honestly say is surgically curable.

It is to be more generally realized as men make tabulations of cases and then study them with liberal minds, that in proved cancer cases we have clinically at least three types of happenings leading up to a diagnosis of cancer. My study indicates that the following is the order of their relative incidence: 1. A symptom-complex of two very *definite* and *different* stages: (a) gastric disturbance, non-malignant and generally chronic; (b) gastric malfunction of malignant type. 2. A symptom-complex generally of a distinctly apparent, pernicious nature. 3. A group of cases in which there is usually evidence of years of gastric disturbance of irregular form, clinically, on which is superimposed a type of affection easily recognized as malignant.

Group 1.—Symptom-Complex Wherein Two Definite and Different Stages of Disease are Present.—This group furnishes 61 per cent. (434 cases) of my series. The average duration of all symptoms in the first stage was 11.7 years. The average duration of all symptoms in the second period is nearly 6 months. The two periods differ markedly. The anamnesis brings out very well the characteristic manifestations of each period. It is only by disengaging the patient from his present state and endeavoring definitely to locate his first departure from gastric health that one gets the key to the situation.

(a) In 61 per cent. of my proved cancer cases the total time of gastric complaint was somewhat over 12 years. For practically 11½ years the symptomatology was that which, clinically, we associate with chronic gastric ulcer. This first period was characterized by a long series of *attacks* of *"indigestion."* These attacks were associated with *epigastric distress or pain* in 88 per cent. of instances. In 85 per cent. the distress had some relation to the taking of food, the interval being longer or shorter according to the character of food taken. After a solid, mixed meal, the pain relief was longer, but when it recurred it was unmistakably more severe than when lighter forms of nourishment had been indulged in. Other forms of pain relief were alkalies, vomiting and diet. In 54 per cent. of instances the pain was referred to some part of the back. The appetite was usually limited by the fear of taking food and thus causing pain, or by the dread of bringing on bleeding. The food desire in this first stage was generally strong. Weight was lost in the attacks but gained between them. The average *weight loss* at this period was 17.4 pounds. *Constipation* was noted in 52 per cent. of instances. In 8 per cent. there was *diarrhea*. *Vomiting* occurred in 60 per cent. Rather more than 70 per cent. vomited in attacks. The time of vomiting was generally when distress was most marked. *Bleeding* (hematemesis or melena) was noted in 17 per cent. of instances during this stage. Of the whole number bleeding, 49 per cent. had bled at least two years prior to coming under observation. Of those who bled within the two year period over 65 per cent. were of the group with long previous history. In this group *anemia* was rarely marked, the average hemoglobin being toward 80 per cent. (Tallquist or Dare).

(b) If this class of cases pursues the above outlined history, the following may ensue: (1) Complete

* Read at the Annual Session of the American Gastro-Enterological Association, Atlantic City, N. J., June 20, 1914.

healing with stoppage of all symptoms; (2) typical chronic, *benign* gastric ulcer may result, or (3) gastric cancer may form, whereas previously there had been but a simple process. And no one can prognose in a given case presenting the clinical picture of gastric ulcer just *which kind of ulcer will heal or continue its benign course or which will ultimately form the suitable ground for cancer.* When we recall the pathology in these cases we can hardly blame ourselves for not catching the ulcer clinically in transition to cancer. All ulcers have about and in them hyperplastic tissue —tissue of defense and of healing. No one can tell in a given case when this hyperplasia will change over from the simple type to the malignant form. *Clinically* we are only warned by the appearance in a patient of a more or less continuous gastric disorder, where attacks had before been the rule. This may occur with or without the onset of pyloric obstruction. Where previously there was trouble in spells, with food relief, we note food aggravation, night distress, delayed vomiting, continuous presence of occult blood in the stools, anemia, cachexia, weight loss steadily maintained, weakness, and that peculiar, hopeless apathy exhibited by the fascias. Pain is rarely marked. Vague distress, "heavy feeling" or soreness in the epigastrium are the rule. Severe pain was observed in but 19 per cent. of our cases. It was of "colicky" nature in 14.2 per cent. Gassy and bloated sensations are generally constant and annoying.

In the second stage vomiting becomes more constant and is frequently in greater amount. The odor of the vomitus changes from distinctly sour or yeasty to cheesy or rancid. The color of the vomitus may exhibit little if any alteration. Inasmuch as more than 96 per cent. of my cases of gastric cancer were of the medullary type, oozing of blood was not uncommon. This pathologic state usually imparts a tan to deep brown color to vomitus or stomach extracts. In a little more than 17 per cent. of my 712 cases of gastric cancer was the vomitus of the classic "coffee ground" color. When it presented these characteristics the disease was far advanced in 84.2 per cent. of instances, and inoperable (so far as resection was concerned) in 77 per cent. The vomitus generally shows excess of thick, tenacious mucus, intermixed with sizable food remnants, frequently poorly chymified.

The stools rarely show macroscopic changes unless hemorrhage complicates, or liver, pancreas or adjacent hollow viscera become involved. On a milk diet, chemical tests for blood were positive in 83.4 per cent. of cases tested.

Group 2.—Symptom-Complex in Cases Clinically Malignant from the Inception of Gastric Malfunction. —Of the 712 cases of gastric cancer studied, 31.6 per cent. (225 cases) fell in this group. Careful history taking failed to elicit any clinical type of gastric complaint in these patients previous to an average time of 7.4 months before they came under observation. It should be emphasized that because no gastric disturbance had been previously noted, the conclusion should not be forced that such patients had had no gastric pathology previously. On the contrary, our postmortem or laparotomy findings of healed ulcers, and even of gastric new growths in individuals who had had no clinical pointings referable to gastric disease, should lead us to exercise caution in insisting when or how malignant processes in the stomach arise. The longest history of gastric symptoms in this group extended over nearly three and one-fourth years; the shortest barely three weeks.

In this group, which I have, from the pathologic view of the disease, styled "primary" gastric cancer, often it is extremely difficult to state from clinical presentings just when cancer began. Many so-called "primary" cancers have histories extending over weeks of time, where the symptom-complex closely approximates that which our present-day vogue associates with gastric ulcer of the continuously active and progressive form. The clinical picture is different, however, in one important respect. To the symptom-complex is added the manifestations of a malignant systemic poisoning. Instead of fairly definite "attacks" of ulcer type of dyspepsia, and that alone, the process is continuous and associated with progressive weakness, anemia, weight loss with cachexia, vomiting, changing rapidly to the rancid kind. Epigastric pain may be severe and prostrating at first, but later moderates in severity, is not relieved, but is aggravated, by food. It ultimately becomes continuous. I have frequently had strikingly impressed on me the "ulcer-features" clinically in primary gastric cancer. The hurried progression to definite malignancy has seemed to emphasize the necessity for separate recognition clinically of the term "chronicity" in its pathologic sense and in its time-factor sense, meaning weeks, months or years of duration of disease. In many of these primary gastric cancers the clinical gamut of "gastritis," "ulcer" and "cancer" may be run in a few months or even weeks. The whole course of the ailment is compressed into a sort of "tabloid," with regard to time, from which parts are readily segregated that closely approximate clinically those stretched over years exhibited by the great group of cancers forming my Group 1. With this state of affairs it is not to be wondered at that patients present themselves to the specialist or the surgeon only when tumor appears in the epigastrium or when hopeless cachexia warns of impending death.

While the above type of onset of primary gastric cancer is not infrequent, fully two-thirds of this group have more or less vague recollections of how they were affected gastrically before loss of appetite, weakness, mental inertia, abdominal distress, weight loss or epigastric "hardness," "knob" or "lump" warned them that something graver than "chronic indigestion" impended. Rarely is the transition from perfect gastric health to the present state a rapid one. Aversion to certain forms of food (as meat, milk, sweets or legumes) is an early manifestation. While the appetite for some viands may be keen, the aversion to others may be marked and, for the individual, radical. Eructations, often of extremely disagreeable taste, generally become pronounced early. Gassy distention is troublesome. Unexplained nausea, with or without general weakness, manifests itself. In 17 per cent. of my cases of this group diarrheic stools appeared without apparent cause. Vomiting may be the first symptom and its copiousness pronounced and alarming. It is generally bitter, sour, cheesy, or may be "rotten" in taste. Vomiting was observed in 79 per cent. of this class. In 64 per cent. of those vomiting it was a daily occurrence. In more than 80 per cent. "delayed" vomiting was exhibited.

Consideration of the types of cases making up my grouping of "primary" gastric cancer would be incomplete without mention of that class which I have styled "fulminant" cancer. In my series, there were thirteen instances (5.7 per cent.) in which the whole

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history of the affection up to the time of laparotomy covered less than seven weeks. The average age of these patients was 49 years.

In this class, profound cancer intoxication was marked from the time of the first departure from gastric health. In nine instances, fever rose as high as 102 F. The leukocytes averaged 14,800. Anemia was of lower grade than is usual in gastric cancer. The hemoglobin averaged 62 per cent. Weakness, weight loss, mental dulness, foul eructations and copious vomiting, gassy distention of the abdomen, epigastric soreness and the appearance of a rapidly enlarging supranavel mass occurred with astonishing speed. At operation the malignant process was always inoperable and perigastric lymphatic gland invasion extensive. The pathologic examinations of tissue removed showed cancer of the medullary type. The very rapid progression in this class of cases is not explained on the basis of the character of the tumor. I have shown that more than 96 per cent. of the cancers in my series were encephaloid, and yet rapid extension, such as I have outlined in this "fulminant" class, is not generally seen. The explanation for this in the varying resistance of the tissues of the individual patient, is not wholly satisfactory.

Group 3.—Gastric Malignancy Following Long History of Clinically Atypical Dyspepsia or Dyspepsia of Extragastric Origin.—This division comprises thirty-nine cases (5.5 per cent.). Two markedly different types of gastric malfunction are brought out by careful history taking. The clinical manifestations preceding those evidently malignant, extended over an average period of 9.4 years. The time covered by the supervening malignant stage averaged 5.9 months.

The clinical symptomatology of the affections when they were apparently of benign nature usually pointed to disease of the gall-bladder, appendix, large bowel or the pancreas. Seven patients of this class had had previous operations performed for anomaly of the appendix or gall-bladder or both. In four instances, gall-stones were found when laparotomy was made for the gastric cancer.

The clinical symptomatology when the malignant period supervened was in every way similar to that of the second period of cases making up Group 1 or of some portion of that exhibited by those in Group 2. The point to be emphasized is that after years of gastric departure from health, of atypic form, but evidently benign, so far as our clinical knowledge extends, the picture changed apparently abruptly to that of definite malignancy. It is only in those patients who had recently submitted to laparotomy for extragastric disease, however, that we can positively state that gastric ulcer or gastric cancer with atypic clinical manifestations had not existed for some time previously.

CONCLUSIONS

There is at present no known medical cure for gastric cancer. We have, as yet, no dependable means at our command for the recognition of the disease at a stage when we can positively state that the affection is surgically curable.

The cases of gastric cancer early diagnosed are those in which the clinical symptomatology is that which we associate with chronic gastric ulcer, and in which laparotomy has been urged on the suspicion that cancer might be present.

Where microscopists disagree regarding the diagnosis of sections of extirpated tissue, clinicians can scarcely be expected to make early diagnosis of gastric cancer before laparotomy.

The question for clinicians and pathologists to settle is not how many cancers had previous ulcer pointings, nor how frequently gastric ulcer changes from simple to malignant form, but just how one is to tell, clinically, in a given case of chronic gastric ulcer, what future course it is destined to pursue. This is the crux of the situation. At present we have no means of prognosing the future course of any gastric ulcer, acute or chronic. The life history of the affection seems to depend on certain unknown factors that are apparently highly individual.

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TORTICOLLIS *

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The following paper is a critical analysis of one hundred cases of distortion of the neck which were entered in the records of the Boston Children's Hospital as torticollis. This analysis has been made in comparison with the findings as reported in the literature of the subject. The cases have been taken from the records of the Children's Hospital in the order in which they applied for treatment.

Any deforming relation between the head and the neck in which the sternocleidomastoid muscle was chiefly involved has been considered as torticollis, whether of congenital or acquired origin.

The sternomastoid muscle has its origin from the sternal notch and the sternal end of the clavicle and is inserted into the mastoid process of the temporal bone. The sternal and the middle portion of the muscle receives its blood supply from the sternomastoid branch of the superior thyroid artery. Unilateral contraction of this muscle pulls the head toward the shoulder, but elevates the chin and turns it away from the side of the contracting muscle. The other muscles about the neck which are most frequently involved in conjunction with the sternomastoid muscle are the scalenus anticus, the trapezius and the splenius capitis. The trapezius causes a more backward inclination and rotation of the head. The splenius capitis bends the head backward and toward the contracting muscle, but does not turn the chin in the opposite direction. The nerve supply to the sternocleidomastoid muscle is from the spinal accessory. The external portion of this nerve leaves the skull by the jugular foramen and descends obliquely outward to the sternocleidomastoid muscle and disappears under the muscle at a distance of about 2 inches from the apex of the mastoid process.

The pathologic work done on torticollis has not been extensive. The most interesting and most valuable has given rise to certain theories, advanced to explain the causation of congenital torticollis.

Lüning and Schulthess[1] have published the details of an autopsy on a child 5 months old, delivered by forceps, who showed at the time of birth a swelling of the middle part of the sternomastoid muscle and this muscle was two-thirds of an inch shorter than the corresponding muscle. Haüsinger[2] reports a case in

* From the Orthopedic Clinic of the Boston Children's Hospital.
1. Lüning and Schulthess: Ztschr. f. orthop. Chir., 1891, i, Part. 1.
2. Haüsinger: Joachimsal's Handbuch, p. 432.

which one sternomastoid muscle was 9 cm. long and the other was only 6.5 cm. long. The pathologic study in the case of a child 14 days old in which a swelling the size of a hazelnut developed two days after birth showed microscopically a chronic interstitial myositis with no trace of blood pigment. This condition must have originated in intra-uterine life and a true hematoma could not have existed. A peculiar degeneration of muscle fiber is described by Volcker[3] as being seen after prolonged partial obstruction to the circulation to the muscle. The changes were seen in the microscopic study of some sternocleidomastoid muscle excised in cases of congenital torticollis. Nové-Josserand and Vianny[4] from careful study of the blood supply under consideration showed it to be of such a character that it could be easily interfered with. The middle and sternal portions of the muscle, as has been said before, are supplied by the sternomastoid branch of the superior thyroid artery. When this is ligatured, injection material thrown into the common carotid or subclavian vessels fails to appear in the areas of distribution of the arteries in question, showing that it has little or no anastomosis with its neighbor. Further, the circulation in this small muscular vessel is readily obstructed in certain positions of the head. Thus experimentally, in the bodies of twenty newly born infants it was shown that later flexion of the head, with elongation of the neck and particularly partial flexion with torsion of the neck, prevented any injection reaching the muscle. The injection material was arrested at the anterior border of the muscle, the lumen of the artery being obliterated at that point. Volcker believes that the hematomas reported were probably postobstructive edema. Anomalies in the position and size of the arteries may explain the cause of some cases of congenital torticollis. The pathologic study made of excised portions of contracted muscles has shown the waxy degeneration of Zenker, which has been described as a "sclerotic interstitial myositis culminating in a more or less hardening of the muscles, with a subsequent shortening."

Etiology.—The etiology of acquired torticollis is varied, but is usually obtainable. It is secondary to some injury or disease of the structures of the neck. The simple form due to mechanical reasons, as scar contraction and trauma, is not uncommon. This form may almost be called chronic; and in this group there is a type of case which is apparently more common than is supposed. By this is meant that chronic form of torticollis due to a traumatism of the head or neck, which may be called "unilateral displacement of one of the cervical vertebrae." In the group of cases analyzed three were found which are believed to be of this type. Cases of distortion due to cellulitis of cervical glands, are, as a rule, transitory and not difficult to diagnose or treat with satisfactory result. This may be said of the distortion following tonsillitis, pharyngitis, measles, toothache, earache, etc. It is believed by some that this painful type of torticollis is due to an irritation of the peripheral nerve which results in active contraction of the neighboring muscles, but this belief has not been universally accepted, as it lacks pathologic confirmation. The irregular types of torticollis due to paralysis, ocular or physical defects, as well as spasmodic torticollis, have not been considered in this analysis, as they were not observed in any of the cases studied. The theories advanced as to the causation of congenital torticollis are still only theories. The most acceptable will be mentioned.

Stromeyer[5] believes that congenital torticollis is usually due to the rupture of the sternocleidomastoid muscle and to a subsequent myositis about the hematoma, which may involve and ultimately destroy a large part of the substance of the muscle, replacing it with fibrous tissue which, as it contracts, causes the deformity. Stromeyer's views have not been accepted by those who have studied operative material from cases of torticollis. His views do not explain the presence of torticollis in extra-uterine pregnancy, as described by Joachimstal[6] and Volcker,[3] and in those cases studied immediately after birth in which the characteristic structural changes have been seen. It is also obvious that time is required for the development of such changes in the muscle and structures of the neck, as has been observed in cases of torticollis, to believe that the condition is other than that dating from intra-uterine life. The history of swelling of the sternomastoid muscle is obtained no more often than it is not obtained.

Of forty cases reported by Maass,[7] twenty-three gave a history of pelvic presentation. In the series studied, 7 per cent. of the congenital cases analyzed gave a history of instrumental delivery. Tumor of the sternomastoid muscle does not necessarily mean a torticollis. Whitman[8] reported seven cases in which there was a swelling of the sternomastoid muscle and no torticollis subsequently developed. Keetley[9] was able to find only eleven cases of torticollis developing from thirty cases of hematoma of the sternomastoid muscle. I was able to find a history of tumor in five cases of proved acquired torticollis, and in ten cases of congenital tumor of the sternomastoid muscle in which there was a congenital torticollis. It may be seen that this theory advanced by Stromeyer is improbable for the following reasons: 1. Rupture of muscle in other parts of the body is never followed by myositis and contracture. 2. It has been demonstrated by Heller[10] that it is impossible to cause myositis and contracture in animals unless infected by actual pyogenic organisms. 3. Most of the cases seen after birth present no evidence of hematoma or injury. 4. Cases of hematoma of the sternomastoid muscle are, as a rule, not followed by torticollis.

The theory held by some writers that congenital torticollis is caused by a constrained or fixed position in the uterus for a longer or shorter time before birth, needs only be mentioned.

The mechanical theory of intra-uterine malposition, fixations of the head and neck by amniotic adhesions and the effect of obliquity of the fetal head, fails to explain why a special lesion of the sternomastoid muscle is present and why the neighboring parts are not involved as well. The simple traumatic theory does not satisfactorily explain those cases of extra-uterine pregnancies in which torticollis has been demonstrated. It would seem likely that injury to the sternomastoid during birth is more apt to take place if there has been an intra-uterine shortening of the muscle. Mikulicz[11] explains the injury which happens

3. Volcker: Bruns' Beitr., 1903, xxxiii.
4. Nové-Josserand and Vianny, Charles: Rev. d'orthop., Sept. 1, 1906.
5. Stromeyer, L.: Beitr. z. Operativen Orthopädie, 1833, p. 128.
6. Joachimstal: Wien. med. Wchnschr., 1902.
7. Maass: Ztschr. f. orthop. Chir., 1903, p. 416.
8. Whitman, Royal: Orthopedic Surgery, Ed. 2.
9. Keetley: Orthopedic Surgery, p. 200.
10. Heller, M.: Experimenteller Beitrag zur Aetiologie des Angeborenen muskularen Schiefhalses, Ztschr. f. Chir., xlix, 204.
11. Mikulicz: Centralbl. f. Chir., 1895.

to the sternomastoid muscle as being caused by compression of the umbilical cord, inducing forced respiratory movements while the fetal head is still engaged in the maternal passages. The sternomastoid muscle, being one of the muscles of forced inspiration, is contracted, so that tension on the neck while the muscle is rigid will be more likely to rupture it than when it is relaxed. The exponents of the simple traumatic theory with a subsequent microbic infection failed to have their theory substantiated by pathologic findings.

From the knowledge obtained from pathologic studies, it seems that the theory based on an ischemia of the sternomastoid muscle offers the most satisfactory explanation of the cause of congenital torticollis. This theory had its greatest exponent in Volcker.[3]

Frequency.—The frequency of torticollis may be judged from the following figures. Royal Whitman[8] states that in twenty-seven years of hospital records there were only 507 cases of torticollis as compared with 5,000 cases of club foot. Of 2,324 patients at the Evelina Hospital for Children, torticollis was found 9 times. The records of the Children's Hospital, Boston, for three years show 2,825 cases treated in the orthopedic outpatient department. Of these 44 were torticollis. These figures are misleading, as cases of deformity came to the children's clinic, so the percentage is high. Whitman reports 87 cases as being congenital out of his 507 cases. Of the 87 cases, 46 were females. The left side was affected in 28 out of the 87 cases. Of the 507 cases, 246 were females and 198 were males. Two hundred and thirty-six were on the left side. In 7 cases out of 55, there was a history of injury; in 48 no history was made of injury. In the 7 cases already referred to there was a history of injury accompanied by hematoma. Kempf[12] reported 37 cases of torticollis, with 24 in girls and 13 in boys. In this analysis it so happened that 50 per cent. were acquired torticollis and 50 per cent. congenital. Agnew believes that the sexes are equally affected. Dievenbach found 5 left torticollis out of 37 cases. V. Aberle discovered 111 cases of torticollis out of a clinic of 18,000 cases in Vienna. Hoffa reported that torticollis occurred in 49 per cent. of his cases, while Schantz found it in 9 per cent. of his cases. In the 111 cases reported by V. Aberle, 67 were right and 44 left. In the 100 cases analyzed by me, 51 were in boys and 49 in girls. Torticollis occurred on the right side 55 times, and on the left 45 times. Among the boys the right side was more common, occurring 35 times in comparison with 16 times on the left, while the left side seemed the more favorite situation with the girls, torticollis occurring on the left side 29 times as opposed to 20 times on the right.

Congenital torticollis may be seen at birth or may not be observed until the expiration of a few months of life. Some writers believe that it may be hereditary and that it frequently coexists with other malformations, such as club-foot and congenital subluxation of the hip, which deformities are considered to-day as possibly resulting from intra-uterine compression or from some initial malformation of the germ. It is also maintained by some that torticollis of the congenital type is closely related to difficult delivery arising from pelvic presentations, impactions of the head and fetal malposition. It has been found in this analysis that a history of delivery by forceps is often forthcoming, but by no means universal. This review of a hundred cases showed but one parent suffering from torticollis and failed to find torticollis coexisting with other malformations except in one case of cervical rib and two cases of supposed spinal defect. The history of labor in these cases was also interesting. Twenty per cent. of the congenital torticollis cases were of normal delivery, and only 14 per cent. gave a history of difficult instrumental delivery.

Diagnosis.—The diagnosis of congenital torticollis depends on a careful analysis of the history obtained and the elimination of all acquired types. It is remarkable how long a deformity may exist before being discovered by parents. In this analysis the average duration of the deformity before discovery, except when discovered in the first weeks of life, was twenty months, while two cases had gone four years without discovery. Both acute and congenital torticollis may be easily confounded with Pott's disease. Acute distortion with an affection of sudden onset, not preceded by stiffness or pain, such as characterizes tuberculous disease, with the head tilted toward the contracting muscle, is the type of case which is easily mistaken for Pott's disease. In this series there were two cases in which caries was suspected for a time. These cases were of acute and sudden onset, but not preceded by stiffness or pain. The head in each case was tilted toward the contracting muscle, while the chin rotated in the opposite direction. There was spasm and contracture, and tension on the affected muscle was very painful, but, if this tension was removed, the motion of the head was free. In Pott's disease, the spasm is always general and motions of the head are limited in all directions. In four of the cases analyzed a rachitic deformity simulated torticollis of the congenital type. In two of these cases a true congenital torticollis coexisted. Acquired torticollis is usually, in the early stages, at least, accompanied by localized pain and sensitiveness with an actual contraction of the affected muscle. The symptoms may soon disappear, leaving only the deformity. Congenital torticollis may not attract attention until the child supports the head or walks. It is difficult then to separate the acquired from the congenital form. In infancy the deformity may be marked with facial asymmetry and even by distortion of the skull. If the asymmetry is present at birth it increases with growth, and even in the acquired form it soon appears if the torticollis is not promptly corrected. In well-marked cases of long standing, whether of congenital or acquired origin, the face on the affected side is shorter and flatter and the skull shows signs of atrophy and deformity. Secondary distortion appears, round shoulders, scoliosis, bowing of the clavicles and lateral displacement of the head.

Treatment.—The treatment of congenital torticollis may be divided into manipulation, the use of mechanical appliances, and operation. Manipulation is successful in infants when there is very little deformity, the corrected position being maintained by means of some form of support. The mechanical treatment of torticollis, according to most writers, should be simple enough to permit removal of the appliance for daily manipulations. The operative methods should all embody the principles of complete severance of all tendons and fascial bands which prevent the correction of the deformity. The methods used are subcutaneous tenotomy or subcutaneous section of the sternomastoid muscle, which have no advantages commen-

12. Kempf: Deutsch. Ztschr. f. Chir., June, 1904 (lxxiii).

surate with their increased danger. Lorenz[13] advised myorrhexis and forced manipulation with rotation in all directions to overcome any shortening of fascia or muscles beside the sternomastoid. Joachimstal[6] found it difficult and Reimer reported a death in a patient 16 years old. Brackett[14] reported collapse in a case during overcorrection. Open operation on the muscle is the rational method. The three sites of operative interference are, first, just below the muscle's insertion into the mastoid process; second, at its origin, just above the sternum and clavicle; third, in the middle portion of the muscle. The point of attack at the mastoid process is easily discovered, and owing to the facility with which the soft parts may be stripped back from the apex of the mastoid process, there is no danger of wounding the internal jugular vein or the nerve and the tendinous part of the muscle is left intact. The operation is easily performed and the resulting scar is left in the line of the hair, which is of great cosmetic value. The operation on the middle of the muscle presents many dangers. This portion of the muscle is thick and important vessels are in immediate contact with its under surface. The operation is difficult and the resulting scar is visible and may be unsightly. The operation which severs the sternal and clavicular portion of the muscle is the most popular in this country. Hoffa and Nové-Josserand[4] speak well of the partial resection of the muscle. Wullstein has partially resected the affected muscle and plicated or reefed the opposite muscle. Mikulicz[11] has nothing but good results to report from the total extirpation of the sternomastoid muscle.

The routine of the Children's Hospital has been the one followed in the large majority of the cases analyzed below. Three of the cases have had the mastoid incision, the rest have had the sternoclavicular incision, some parallel to the clavicle, some at right angles and a few by an oblique incision. The routine followed has been as follows:

Under ether the child is placed dorsally recumbent on the operating table, with the head twisted and the shoulder elevated so as to bring the offending muscle sharply into relief. The form of incision having been decided on and used, the dissection is carried down to the muscle at its tendinous portion, and all obstructing tissues are excised. The wound is closed in layers as tightly as possible, the skin approximation being as nearly perfect as can be. A collodion dressing is then applied over the skin wound, and the head held in an overcorrected position, while a plaster helmet is applied, which firmly holds this position. This helmet is then worn for two months, after which time the child wears a steel support, with a chin piece which maintains an overcorrected position of the head in its relation to the past deformity. The steel apparatus is worn for a year, being removed for purposes of massage and exercise.

Some writers insist on the daily removal of apparatus, for active and passive movements, beginning fourteen days after the operation. This has not been found necessary at the Children's Hospital to obtain good results. The use of Michel's clips in order to obtain the closest approximation of the skin, is strongly recommended, as is the oblique incision, which is better than the horizontal or vertical one, decreasing the danger of keloid degeneration of the scar. The after treatment of these cases varies with the different operators, but all agree that it is essential to success to maintain overcorrection for a certain length of time, and that some method preventing the offending muscle from shortening is necessary for from six months to a year. The results, as the tables show, are uniformly good, and those failures that must be reported were due either to the incompleteness of the operation or insufficient treatment after operation. After reviewing these cases, certain questions naturally present themselves.

Does torticollis occur in children who have less resistance to disease than other children? A comparison of the congenital with the acquired torticollis cases is interesting. If the greater average age, and therefore, longer exposure to disease, in the acquired type is borne in mind it will be seen that there is no unusual susceptibility in either group. The occurrence and frequency of disease in this list is only the normal frequency during the ages of childhood. The affections about the neck which would be expected are more frequently found in the acquired type than in the congenital type of torticollis.

Among the cases analyzed I found the complaints enumerated in Tables 1 and 2 had existed before the entrance of the patients to the hospital.

TABLE 1.—CONDITIONS EXISTING BEFORE ADMISSION

Disease	Acquired	Congenital
Ear trouble	7	1
Pertussis	28	13
Measles	33	25
Croup	1	1
Pneumonia	5	5
Rickets	3	1
Chickenpox	14	7
Scarlet fever	6	3
Diphtheria	5	3
Typhoid	1	1
Meningitis	1	0
Mumps	5	1
Malaria	1	1
Nervous	3	0
Rheumatic fever	3	1
Cervical rib	0	1
Tonsillitis	8	3
Adenoid hypertrophy	6	0
Bronchitis	1	1
Syphilis	0	1

TABLE 2.—AFFECTIONS ABOUT THE NECK

Disease	Acquired	Congenital
Ear trouble	7	1
Mumps	5	1
Diphtheria	5	3
Tonsillitis	8	3
Adenoids	6	0

In view of the reports wherein difficult labor has been attributed as the cause of torticollis, it is interesting to review the figures obtained (Table 3).

TABLE 3.—TORTICOLLIS ATTRIBUTED TO DIFFICULT LABOR

Status	Acquired	Congenital
Normal delivery	6	21
Not obtainable	12	12
Breech presentation	3	0
Transverse presentation	1	1
Foot presentation	1	0
Shoulder presentation	1	0
Instrumental delivery	12	16

The history of difficult labor with the danger of injury was found eighteen times in the acquired type of torticollis and seventeen times in the congenital, not obtained or normal in eighteen cases of the acquired type and thirty-three cases of the congenital.

In those cases in which the maternal observation may be taken seriously it is interesting to note the first symptom observed (Table 4).

TABLE 4.—FIRST SYMPTOM OBSERVED BY MOTHER

Symptom	Acquired	Congenital
General pain in neck	3	0
Torsion of neck	33	16
Stiffness of neck	15	1
Pain behind ear	5	0
Scoliosis	1	11
Tonsillitis	1	0
Tumor of the sternocleidomastoid	0	19

13. Lorenz: Wien. med. Presse, February, 1893.
14. Brackett: Trans. Am. Orthop. Assn., 1897.

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The absence of pain, as reported in the congenital type, is probably due to the inability of the parents to differentiate infantile pain of one cause from another, and is not of great comparative value. The presence of pain in the acquired type is not so prevalent as one would expect from published literature. The presence of tumor in the region of the sternocleidomastoid muscle was observed in ten cases of the congenital type. Torsion is by far the commonest symptom.

In view of the above figures it is of interest from a non-medical point of view to note what the parents believed to be the causation of the deformity (Table 5).

TABLE 5.—CAUSE OF DEFORMITY ACCORDING TO PARENTS' VIEW

Cause	Acquired	Congenital
Ear trouble	6	2
Rickets	0	1
Spinal meningitis	1	0
Birth injury	1	5
Rheumatism	1	0
Adenoids	1	0
Fall	1	0
Tonsillitis	3	8

Secondary deformity was found in many cases both of the congenital and acquired types (Table 6).

TABLE 6.—SECONDARY DEFORMITY*

	Acquired	Congenital
Facial asymmetry	6	15
Atrophy	4	10
Strabismus	1	0

* Scoliosis was present. In most cases the figures are very misleading, so are not given.

The atrophy, facial asymmetry and compensatory scoliosis seem to depend on the duration of the torticollis.

The last question to answer is always, What are the results?

Most writers report uniformly good results from their respective methods of procedure. A review of the literature confirms their claims. In all the cases analyzed, positively cured cases were 64 per cent.; 14 per cent. of the cases were lost from the clinic; in 16 per cent. of the cases not lost it was impossible to get data late enough to classify the result. One case was a failure after the first operation, but was cured by a subsequent operation. Of forty-five patients operated on and examined long enough after the operation definitely to classify them as successes or failures, thirty-nine patients were cured. The reasons for the four failures were of two sorts—either incomplete excision of the obstructing tissues, or insufficient after-treatment. Two cases were not true contractures of the muscle structure, but bony injury—unilateral displacement of the cervical vertebrae, which was not recognized before operation.

Operation definitely offers a cure for the deformity of congenital torticollis and the results are uniformly satisfactory.

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The Insane in Switzerland and Spain.—The official figures for 1910 published by Koller for the four leading cantons of Switzerland show insane and feeble-minded to a total of 6 to 9.7 per thousand inhabitants. Koller accepts this as evidence that at least one in every one hundred persons there is mentally deficient or insane. The *Revista Clinica de Madrid* compares these with statistics in Spain, which show 1,000 insane in the asylums of the Madrid province, to a population of 900,000, that is, one in every 900 persons in the province is an inmate of an asylum.

THE CELLULAR FACTOR IN INFECTIOUS DISEASES *

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The prevailing conception of an infectious disease is that it is due to the poison of a parasitic micro-organism. This conception seems to me inadequate, for it leaves out of account another and to my mind very important source of toxemia, at least in some of the infections, namely, the proliferation and disintegration of myriads of new cells.

Practically all writers have hitherto attributed the constitutional symptoms of infectious diseases to bacterial poisons, either exotoxins, i. e., secretory products, as in diphtheria and tetanus, or endotoxins—poisons inherent in the bacterial bodies, as in typhoid fever and tuberculosis. And many of the local changes likewise, such as the degeneration of parenchymatous organs, are ascribed to the same cause. Take diphtheria, for example: the general symptoms—fever, prostration, albuminuria, delirium, anemia—are supposed effects of the toxins; so are the circulatory changes, the cardiovascular weakness. The swollen glands and the false membrane formation are attributed to the local action of the toxin.

With regard to typhoid fever, the views are very much the same. The so-called constitutional symptoms of the disease—fever, headache, prostration, delirium, carphologia, intestinal tympany, and albuminuria—are attributed to the presence in the blood of the endotoxins of the typhoid bacillus. These same poisons are held responsible for the intestinal lesions, the changes in the lymph glands, the bone marrow and spleen, and the parenchymatous degeneration of the heart, liver, kidney and voluntary muscles.

In tuberculosis the symptoms are ascribed either to the tubercle bacillus, that is, to its poison, or to a mixed infection of this micro-organism with pyogenic bacteria. In other words, our present conception of the infectious diseases emphasizes solely the toxemia produced by the causative parasite. Is that view adequate? Is it correct? Before answering these questions, permit me to go back a little in time. A decade and a half ago while actively engaged in pathologic work, I chanced to make an autopsy at the University Hospital in a case of general carcinomatosis, the symptoms of which had closely resembled an acute infectious disease, the last phase being a comatose state. At the autopsy the peritoneum was found everywhere dotted with small whitish nodules, indistinguishable on naked eye examination from miliary tubercles. The discovery, however, of a primary cancer in the rectum and the characteristic histology established the carcinomatous nature of the lesions.

About the same period I had under treatment a man with miliary tuberculosis in whom the disease was with difficulty distinguished from typhoid fever. He died at the end of an acute illness of three weeks' duration, the autopsy revealing everything densely peppered with equal-sized, firm, gray tubercles.

These two cases made a profound impression on me—clinically so similar, etiologically so different, and the second so much like typhoid fever. I concluded that the three diseases must have something in common. The slightest acquaintance with pathology shows

* Read before the College of Physicians of Philadelphia, with lantern demonstration, Dec. 2, 1914.

that the most striking thing they have in common is a tremendous cell proliferation. In a paper written at the time (in 1899) I made these cases the basis of a hypothesis which in its essential features is the same as that I wish to present here. Permit me to quote a few lines from this juvenile essay.[1]

> The death in miliary tuberculosis could not be explained by the destruction of tissue or even by the invasion of a vital part by the tuberculous process. The reason always given is that it is due to toxemia, through poisoning with the products of the tubercle bacillus. I would not deny that the bacillary poisons play an important rôle, but attention, so far as I know, has not been called to the part taken by the myriads of new cells that are added to the body in the course of two or three weeks. When we reflect that every living cell forms metabolic products, that cell multiplication is probably always accompanied by the excretion of certain materials, we must conclude that during the formation of the countless host of tubercles, with their infinite number of cells, a large quantum of metabolic substances is thrown into the circulation for the system to deal with as best it can; and when, under the influence of the bacillus, some of the cells break down, more soluble matters are washed into the blood. It seems but reasonable to conclude that the body cannot rid itself of that enormous quantity of metabolic products, even if this material were normal in character, and if it is, as we may justly assume, not normal, then the result can only be a profound intoxication. Add to this "metabolic toxemia," as I would call it, the bacterial toxemia produced by the bacillus, and the cause of death becomes clear.

For the moment I will leave out of consideration the carcinoma case and will confine myself to a discussion of miliary tuberculosis and of typhoid fever.

A miliary tubercle consists of a vast aggregation of epithelioid cells, together with some giant cells and many lymphocytes—cells for the greater part if not altogether newly formed in response to the stimulus of the tuberculous poison. The number of cells in a good sized tubercle is theoretically not beyond computation, but I know of no reliable estimate and for practical purposes the number is infinite. With regard to the tubercle bacilli, their number in a tubercle probably varies, but to all intents and purposes is also uncountable. When we consider the larger tuberculous areas, as in caseous pneumonia, both the cellular and the bacterial quantities must be expressed by the sign for infinity. I do not know how long it takes a tubercle to form, but it would seem that the cells multiply nearly as fast as the bacteria. In the course of two or three weeks there are thus added to the body in a case of miliary tuberculosis a quantity of new cells wholly beyond the power of the mind to conceive. These cells grow by utilizing the elements of the blood, chiefly the big protein molecule. In their period of active multiplication they take from the blood-stream what they need and cast back into it the unused remains. If the new cells are native to the place where they are formed then the cast-off products of their activity may be normal, though it is possible that they are formed in such quantity in a short time that the power of the system to deal with them is overtaxed. If we assume that since the cells are formed under pathologic conditions, they are not exactly like the old cells of their locality, then the possible harm done in their growth by abstraction and addition is even more readily conceived.

There is, however, another and probably more important factor to be taken into account in determining the fundamental causes of the symptoms of miliary tuberculosis. The newly formed cells soon die, by undergoing a peculiar change known as caseous degeneration. It is interesting to know how this is brought about. Some have ascribed it to the poison of the tubercle bacillus, others to starvation through inadequate circulation, and still others have held that the cells might be *ab initio* poorly endowed. The real explanation for the death of the cells is probably to be found in the newer theories of ferment action, especially in the theory of parenteral digestion advanced by Abderhalden. Abderhalden, as is well known, finds that if a foreign substance, let us say a foreign protein, which, were it introduced through the alimentary canal, would be digested there, is introduced under the skin or into the blood or anywhere except into the digestive tract, it excites at once the formation of ferments that break up the foreign protein into its so-called "building-stones." This dissolution of the protein by the appropriate ferments is a true digestion and since it occurs outside of the alimentary canal is called *parenteral digestion*. It is possible by physicochemical methods and by certain optical tests to demonstrate the presence of these proteoclastic ferments through their resultant products in the blood. The recent reports by Drs. Sailer, Schnabel and Williams have brought out the main points of the Abderhalden theory.

I have looked in vain in the English literature for a satisfactory rendition of the important terms created by Abderhalden to elucidate his theory, and have therefore endeavored to meet this lack by a series of new terms as shown in the following tabulation:

Abderhalden Term	Proposed Term
Körpereigen[2]	Idiosomatic
Körperfremd	Allosomatic
Bluteigen	Idiohematic
Blutfremd	Allohematic
Zelleigen	Idiocellular
Zellfremd	Allocellular
Arteigen	Idiogeneric
Artfremd	Allogeneric

A word about the derivation of these terms, in particular the prefixes, may not be amiss. "Idio" is derived from ἴδιος, own, proper, peculiar (οἱ ἴδιοι, friends). "Allo" comes from ἄλλος, other, foreign. Idiocellular and allocellular are, I confess, hybrids, but they are more euphonious, I think, than idiocytic and allocytic.

To return to the tubercle: As stated, the cells of the tubercle undergo a sort of digestion which in the ordinary case does not go on to complete solution of the tubercle. The failure of digestion to be complete, Jobling and Petersen[3] attribute to the presence of soaps which act as ferment-inhibiting substances. Under certain conditions not clearly understood — Jobling and Petersen believe that mixed infection is necessary—complete solution occurs with the disappearance of the tubercle. This is proved clinically by indubitable cases of cured miliary tuberculosis of the meninges and by the proved disappearance of even large tuberculous foci and masses in the lungs and peritoneum. In the removal

1. Riesman, D.: Philadelphia Med. Jour., Feb. 4, 1899.

2. Gavronsky and Lanchester (Defensive Ferments of the Animal Organism, New York, 1914) in their otherwise very satisfactory translation of Abderhalden's book, use the rather cumbersome terms "in harmony with the body" and "out of harmony with the body" for the words Körpereigen and Körperfremd.

3. Jobling and Petersen: Jour. Exper. Med., 1914, xix, No. 4.

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of some of the products, phagocytes may be active; but the digestion itself is a chemical process.

We have then in tuberculosis myriads of cells undergoing parenteral digestion and in consequence throwing into the blood products that if not qualitatively are at least quantitatively abnormal. It is my belief, therefore, that in acute miliary tuberculosis and indeed in all other forms of tuberculosis, a large share, not yet measurable, in the production of the symptoms must be given to the substances liberated by the living and dying pathologic cells.

I will now pass on to typhoid fever. I may say at once that, in general, what I have said of tuberculosis holds true of this disease. The typhoid bacillus enters the body through the intestinal canal, gets into the intestinal lymphoid tissue, into the lymph glands, the bone marrow and the spleen and provokes in all of these places, in an exceedingly short space of time, a truly collossal proliferation of cells. I exhibit here several specimens of intestines in which Peyer's patches reveal themselves as large fleshy masses. The normal spleen weighs about 200 grams, the typhoid spleen probably five or six times as much. Even if some of this additional weight is blood, because of active congestion, the greater part is constituted by new cells developed in the course of a week or ten days.

The lymph glands of the mesentery are normally scarcely appreciable to sight. In typhoid fever they may be as big as walnuts. When we contemplate it, is not this increase in cells staggering to the mind —an increase quite on a par with the stupendous multiplication of the bacteria. This extraordinary cell proliferation is achieved by complicated processes in which, as Reichert[4] has just shown, the cells convert the stereo-isomers of the blood into their own specific proteins. The conversion involves such tremendous cleavages and reconstructions that as mere manifestations of dynamic energy they may be compared to the manifestations of radio-activity.

Adapting a further thought from Reichert, I might say that the typhoid bacillus, after entering the body, disturbs the physicochemical equilibrium and initiates a series of reactions that go on from step to step until the end of the process, a physiochemical equilibrium which is either recovery or death, is reached. The beginning of the process—the first step—absolutely and inevitably determines the end, a sort of predestination not dreamt of in John Calvin's philosophy. All the changes from the liberation of the typhoid poison to complete autolysis of the newly formed cells are produced by the action of appropriately geared ferments. These changes are all connected and in their totality they constitute the disease typhoid fever. Viewed from this aspect, the symptoms of typhoid fever are a composite of the bacterial and the cellular toxemias and are not the result of the typhoid toxemia alone.

Naturally it is difficult at this time to say what part of the symptomatology of typhoid fever is bacteriotoxic and what part is cellulotoxic, nor have I any clear idea how the problem is to be solved. Perhaps the Abderhalden test, employing spleen, bone marrow and lymphoid tissue as substrate, may show corresponding ferments in the blood. While that demonstration would not *ipso facto* be proof of toxic action, it would open the way to further research.

4. Reichert: Science, Nov. 6, 1914.

Pneumonia is another disease in which the bacterial toxemia has been overemphasized to the exclusion of everything else. It seems to me not at all improbable that some of the general symptoms are due to the exudate, independently of the bacteria.

Friedrich Müller and later Flexner[5] showed that the resolution of the exudate—the autolysis—is a fermentative process. Why may not active substances be liberated in this process, inasmuch as autolysis is an ideal example of parenteral digestion? It seems to me quite probable that the crisis is due to this factor rather than to bacterial antibodies. A study of the amino-acids in the blood, and animal experimentation with extracts of pneumonic lung, may help to solve the problem.

If anyone sufficiently interested will think over the remaining bacterial diseases, other examples of cellular toxemia will suggest themselves. There are, for instance, the ordinary pyogenic infections in which leukocytic infiltrations occur outside of the blood vessels. These infiltrations undergo digestive autolysis, whereby active substances may be turned into the circulation. The so-called Fochier's abscess (*abscès de fixation*) illustrates this possibility in an empiric way. That leukocytes may be active in the body for which they are *körpereigen*—idiosomatic—is shown by the recent observations of Moreschi[6] and of Rotky.[7] Both found that the leukocytes in leukemia destroy the power of agglutinin formation in typhoid fever and other infections. The effect of the Roentgen ray on the spleen in leukemia and other diseases, an effect manifesting itself by fever, prostration and metabolic changes, is another evidence of the possibility of cells from the individual's own body, in other words, idiosomatic cells, developing toxic power. It may also not be irrelevant to mention that Krehl[8] attributes the fever frequently noticed in pernicious anemia to elements derived from the disintegrating red blood corpuscles.

The interesting observations of Flury[9] are also in line with my hypothesis. Flury believes that the symptoms of trichinosis are in part due to the trichinae acting mechanically and to a poisonous substance which they contain; in part, however, to the chemical products that arise from the degradation of the invaded and damaged muscle tissue of the host.

With regard to malignant disease, the case I mentioned earlier in my essay finds a fairly satisfactory explanation if we assume that the theory or hypothesis of "cellular toxemia" is correct and of general application.

I have no doubt that the thoughts here expressed have in some form occurred to other men; yet I have looked in vain in medical literature for any allusion to the cellular factor in disease, apart of course from any local effects. The splendid Traité de Pathologie by Bouchard and Roger is, as far as I have been able to determine, entirely silent on the subject. It is true reference is made to the action of the lymphatic glands in infectious diseases, but chiefly in their mechanical relations as filters, or as I would call them, barrier-forts, as distributors of infection and as sources of phagocytes, not at all to the possibility that the products of the lymphoid cells, living or dead, may contribute an active "something" to the circulation.

5. Flexner: University of Penn. Med. Bull., July-August, 1903.
6. Moreschi: Ztschr. f. Immunitätsf. u. exper. Therap., 1914, xxi, 410.
7. Rotky: Zentralbl. f. inn. Med., Oct., 24, 1914, No. 43.
8. Krehl: Pathologische Physiologie, Ed. 8, Leipzig, 1914, p. 145.
9. Flury: Arch. f. exper. Path. u. Pharm., 1913, lxiii, 164.

On the basis of the theory or hypothesis here advanced a new classification of bacterial infections suggests itself. We may make two great classes:

A. The productive infectious diseases, characterized by cellular proliferation.

B. The non-productive infectious diseases, not so characterized.

To the first class belong tuberculosis, typhoid fever, and pneumonia.

In pneumonia the cells of the exudate may not be all newly formed. They may have been called forth from the cell depots in the blood and elsewhere. They are, however, new in their pulmonary site and in the Abderhalden sense are out of place.

To the non-productive bacterial diseases belong diphtheria and tetanus.

A closer study of this classification reveals an extremely interesting point, namely, that the infections classed under A, that is, the productive infectious diseases, are all due to bacterial endotoxins, or, in the sense of Vaughan, to split proteins, while those in Class B, the non-productive infectious diseases, are due to the soluble toxins and not to poisons contained in the bacterial bodies. Whether this is a general biologic law, I do not know.

In conclusion, I beg to express the hope that men devoting themselves to research, if they find anything suggestive in the hypotheses advanced, will test them by the experimental method.

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SOME OBSERVATIONS ON THE NERVOUS AND MENTAL SYMPTOMS OF HEART DISEASE

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In all our studies of disease processes it is imperative that we remember that we are always dealing with an organism and not with a mechanism, that this organism is a morphologic and physiologic unit, and that, therefore, there can be no change of a pathologic nature in one part which does not produce deviations from the normal throughout the whole. Particularly must it be borne in mind that pathologic processes, before they are discoverable by any physical sign, may, and generally do, produce marked changes in the nervous system of the patient. It is quite probable that the first effect of a nascent disease is the production of a nervous reaction which tends to inhibit the further development of the process. Indeed, one of the chief functions of the nervous system must be the overcoming of pathologic tendencies here and there and the maintenance of that fundamental equilibrium which constitutes health, in the face of the mechanical, chemical and biologic agencies which are constantly tending to disturb the perfect balance of physiologic forces. While, as yet, we are not able to understand them, we are compelled to believe that there are many nervous reactions, preserved and developed by natural selection, which are set in motion by those stimuli, which tend to produce a disease process, that these nervous reactions are of a conservative nature, and that without them the organism must quickly perish. A better knowledge of these nervous reactions will go far toward clarifying our understanding of certain puzzling phenomena of immunity and may throw some light on the obscure problem as to how mental suggestion can influence a morbid physical condition in a favorable manner.

The classic work of Head[1] on the "Mental Changes Accompanying Visceral Disease" has not, I believe, received sufficient attention on the part of general practitioners and students of medicine.

Some time since, as a result of reading Head's article, and following certain suggestions of Dr. Stewart Paton, which were most valuable, I began a study of the nervous and mental symptoms of cardiac disease, and, while this work was not carried as far as I wished, I desire to present, in a preliminary way, some of my tentative conclusions. Head found that there were two symptoms referable to the nervous system which occurred quite constantly in cases of disturbed or broken cardiac compensation. First, a reflected pain along the distribution of the fifth nerve, and second, a mental and emotional abnormality, aside from any worry about the disease, characterized by depression, anxiety and fear, often with a sense of impending ill, and, further, that these emotional states occurred either with or without distinct delusions and hallucinations. It was my purpose to determine, if possible, whether these nervous symptoms could be made of practical diagnostic value, and whether the development of these emotional states in cases of cardiac irregularity could be made to throw any further light on certain disputed questions in connection with our knowledge of the emotion-producing mechanism.

We know that the mental state following a perception which is to cause an emotion, is followed by marked changes in the whole circulatory system, especially in the rhythm of the heart, the heart frequently being checked in its action, or momentarily paralyzed, this being followed by a rapidity and irregularity of action of varying degrees. The Lange-James theory of emotion, which has had many opponents, holds, as stated briefly by Ribot, that, in any emotional state, there is, "first, an intellectual state, then organic and motor disturbances, and then the consciousness of these disturbances, which is the emotion," or, as James says, "The bodily changes follow directly the perception of the exciting fact and our feeling of the same changes, as they occur, is the emotion." In view of this much discussed psychologic theory, it becomes most important to determine whether cardiac motor disturbances, caused in a purely mechanical way, as by a leaking heart valve, may act as a stimulus from below, as a certain intellectual state may act from above in producing an emotional state, and whether this emotional state, so caused, may bring about an intellectual state to explain it. If this is possible, then we have a complete reversal of the emotion-producing mechanism and very strong corroborative evidence in favor of the Lange-James theory. The observations of Head, which, as far as I went, I have been able to confirm, are of great value, for the reason that they give us new evidence on this point. As briefly as possible I desire to state some of the tentative conclusions which I have drawn from a study of Head's cases, as reported, and from observations on cases of my own.

AUTHOR'S CONCLUSIONS.

1. A defective heart valve, producing cardiac muscle strain and irregularity, is sufficient to create a dis-

1. Head: Brain, 1901, xxiv.

tinct emotional state of depression, anxiety and fear, independent, as Head says, of any worry about the disease. This emotional state, arising from a mechanical difficulty, resembles closely that arising from a psychic state, and the emotional state so caused may either remain vague and unexplained, or there may be induced delusions and hallucinations to explain it. One of my patients (Case 3) with mitral regurgitation suffered during the first stages of broken compensation from extreme depression, fear and irritability, but later became suspicious and obstinate and finally developed delusions of persecution and hallucinations. His delusions first appeared in the hypnagogic state, fading as he became fully aroused and attentive. Later, he came to hold them more tenaciously, and they finally became fixed. Further observations will prove, I believe, that persistent irregularity of the heart's action does, in almost every case, produce a mental and emotional state deviating in some important respects from the normal, which abnormality may be occasional, slight and transitory or so marked and permanent as to constitute a distinct psychosis.

2. The first mental symptoms of cardiac disease occur when the inhibitions of the higher centers are relaxing in the hypnagogic or in the sleeping state, and there is much to substantiate the old view that night terrors and nightmares are often caused by an irregularity of the heart's action. As the physical disturbance becomes more massive, either by increased intensity or chronicity, the mental abnormality is carried over into the partially or fully awakened state. One patient with aortic regurgitation and arteriosclerosis when trying to sleep would become greatly troubled with mild delusions of self-persecution and with self-accusation. This distress was frequently keen and would persist after he was fully awake. Often, to free himself from the annoying delusion, he would get up and move about, when the idea would become weaker, only to grow stronger again when he returned to bed. All heart patients should be questioned closely about their sleeping and dreaming, for it is quite possible that periods of failing compensation might be forestalled, in certain instances, if rest were instituted at the first approach of these marked nervous phenomena. There can be no doubt of the fact that any alteration of any of the normal physiologic rhythms, especially of the heart rhythm, exerts a profound influence on the mental state, especially during sleep. This being the case, it is evident that any system of psychic or dream analysis, as advocated by the Freudians, should take into consideration the condition of the circulatory apparatus and its functions.

3. There are cases of heart disorder which may long remain undiscovered by the attending physician because of his failure to properly study the nervous symptoms of his patients. Those disorders which are characterized by brief periods, occurring at long and irregular intervals, during which the normal action of the heart is more or less seriously disturbed, are very easily overlooked by the physician who places too much confidence in his stethoscope, which will reveal nothing in the interval between the attacks. A patient giving a history of occasional very distressing dreams, from which he awakes with a sense of oppression, should, if possible, be so placed as to be under observation during the night, when it may be found that the disturbed rest has been due to an attack of extreme bradycardia. I have seen one such instance, and here the occasional nocturnal attack of bradycardia was the only cardiac symptom for some time, although attacks during the day developed at a later period. Such cases show the importance of observations of the heart action during sleep, especially where there are unusual nervous phenomena. They also raise the very interesting question whether there may not be painful experiences in the somnolent state of a subjective nature induced by cardiac irregularity, caused by coronary and myocarditic changes, which for some time precede and may perhaps give warning of the symptoms of angina pectoris which are to develop later.

From what we know of the extreme sensitivity and quick response of the brain centers in the somnolent state to any alterations in the physiologic rhythms, we should expect to find such premonitory symptoms during sleep at the very beginning of the process of cardiac degeneration, and the question is worth further study.

4. The symptoms referable to the nervous system which we find in certain forms of heart disease are constant enough to be of practical value to the physician. The neuralgia of the fifth nerve and the scalp tenderness over the area of its distribution, as described by Head, is of such frequent occurrence that it is of some diagnostic and prognostic value in heart cases. In any case of heart strain, whether due to valvular lesion or prolonged functional overactivity, as in hyperthyroidism, this symptom may develop, and, in chronic valvular cases, the onset of neuralgia may precede a period of failing compensation so regularly that the patient himself learns that the pain is a signal that he must rest. It is, I believe, quite probable that a neuralgia of the fifth nerve is, far more often than has been generally supposed, a reflex visceral pain. In every case a thorough search should be made for a visceral cause, especially by a careful examination of the heart. In chronic heart cases the onset of neuralgic pains should always be considered an indication of the beginning of a period of disturbed compensation. It is possible that this pain may be the first and only symptom of seriously increasing heart strain in certain exceptional instances.

5. It is important to remember that many cases of fifth nerve neuralgia, and also many cases of neurasthenia with anxiety, fear and depression, especially in patients 40 or 50 years of age, may possibly be due to that condition of nerve strain which may be caused by a nascent cardiac disorder not sufficiently developed to be discoverable by physical signs. The long known favorable results of physical rest in many of such cases of functional nervous disorders might thus be explained if the theory is a sound one. Very much has been written about the far-reaching effect of ciliary muscle strain, and the profound influence of all forms of ocular trouble on the nervous system, and now we are just beginning to realize how necessary is the study of the influence of cardiac center, nerve and muscle strain, and compensation, perfect and imperfect, in the production of nervous symptoms.

Patrick[2] agrees with Dana,[3] that trifacial neuralgia is most apt to occur between the ages of 40 and 60, or in the "degenerative period of life," observations which are of great importance in this connection.

It is worth while to consider whether it is possible that the nervous and psychic symptoms described by

2. Patrick, H. T.: The Symptomatology of Trifacial Neuralgia, THE JOURNAL A. M. A., May 16, 1914, p. 1519.
3. Dana, C. L.: Natural History of Tic Douloureux, with Remarks on Treatment, THE JOURNAL A. M. A., May 5, 1900, p. 1100.

Head, constitute a complex conservative nervous reaction, preserved by natural selection for the protection of the organism, since pain and depression, by tending to limit activity, would in these cases exert a restorative influence. It may be that further careful study of the nervous symptoms of diseased states will furnish other examples of now unknown nerve reflexes which have for their purpose that same limitation of motor activity which is so often of such great therapeutic value.

Every individual is a network of more or less differentiated but intimately associated functions, and a disorder in any part or function, in its incipiency, and in its later irradiations, constitutes a natural experiment by which we can increase our knowledge of every part and function. What has already been learned by many able investigators of the interrelation of physical and mental states, has made possible modern psychology and psychiatry, but much more must be accomplished. Every physician should carefully investigate, as far as possible, the nervous and mental symptoms of his patients and make reports on interesting cases, and every general hospital should have a psychologic laboratory for the investigation of suitable cases. This preliminary and, perhaps, premature paper is offered in the hope of securing the interest and cooperation of others in this important line of work.

The following cases illustrate some of the above points:

ILLUSTRATIVE CASES

CASE 1.—H., woman aged 52, married. Mitral regurgitation. March, 1904.

Twenty years before the patient had a severe attack of rheumatic fever, lasting all of one winter. Later, she had two attacks of pneumonia. Ten years ago she had a severe illness marked by fainting spells and dyspnea. In the winter of 1903-04 she went to a sanatorium with her husband, who was an invalid. She complained to the physician in charge that she suffered with severe facial neuralgia, but was told that it was only imaginary, and was advised to take plenty of exercise out of doors. She began walking several miles each day. The neuralgia became very severe after she began her regular walks in December. Early in March compensation was completely broken. Extreme dyspnea, bloody expectoration, edema of feet, soft blowing systolic murmur, with pulse 120, and, at times, very weak. All winter the neuralgia had been severe, worse at times, and when she was walking out of doors. The pain was over left face and forehead, over the back of the head, on the same side, especially behind the ear. It was very severe when treatment began in March. She was put to bed, given digitalis and purged and the neuralgia and heart action improved rapidly until the end of the third week, when the neuralgia disappeared.

I had this patient more or less under my observation for ten years after this attack, and while an invalid, with increasing disability, frequent periods of rest and extreme care prolonged her life. During this period neuralgic pains occurred at intervals and were always considered indications that a long rest in bed was necessary. This patient also had hallucinations, as described by Head, when the neuralgia was at its height. A little man in dark clothes would appear at the foot of her bed and look at her. She thought he was the pain and would say "Go away."

CASE 2.—City Hospital (now Mercy). H., man aged 50, engineer, widower. Aortic insufficiency. Arteriosclerosis. Feb. 14, 1905. Dilated venules on face, lips cyanotic, neck vessels pulsate, emphysema, dilated heart, sounds irregular, with diastolic murmur at the base and systolic at the apex; disseminated arteriosclerosis; extreme dyspnea and orthopnea; Corrigan pulse.

Sleeps very lightly and says he knows the hour at any time in the night. Mental state at night as follows: He finds himself very much worried and reproaches himself for some piece of work he had left undone or had not done properly years before. He has a strong impulse to go and finish the work in question. The task is always a specific one in his past life, and there is an actual but faint delusion. He says, "I say to myself, that was long ago, that work. I have nothing to do with it now, and I get myself out of it [the delusion]." At these times he is probably partially asleep but is not sure. The idea has recurred over and over again at night. He says, "It is an idea, not a dream," and he is much distressed by it. To rid himself of it he would often get up and light his pipe, but even then sometimes it would persist and get stronger when he would return to bed. Pulse is weak, intermittent and every second or third systole is incomplete and not felt in the radial artery.

CASE 3.—City Hospital (now Mercy). Feb. 28, 1905.

J. G., man aged 42. Mitral regurgitation, failure of compensation, psychosis. Nine years previously the patient had rheumatism; never the same since. Alcoholic; heart dilated; irregular; systolic and presystolic murmur; edema of feet; enlarged liver, 2 inches below costal margin; ascites.

New Year's night the patient had been drinking, when he was seized with dyspnea and pain over the heart; feared death. Now is very irritable, excitable and obstinate. Disobeyed directions because he had impulse to disobey. In this state before he came in. He was in a condition of mild resistance. Contradicts statements. March 10, sat up all night. Says, "Dropsy and pain slowly come up to level of lower chest at 10 a. m. and then slowly go back." Was irritable, anxious, emotional. Three days later became very restless and reticent, refusing to talk. Five days later he became suspicious and resentful, taking a dislike to one near him. He stares about in a nervous manner. He asked if he had been home since he had been in the hospital. Thought he had been moving at home, and asked when he would be paid a certain imaginary sum of money. About ten days later the idea that he was moving his furniture the night before seemed firmly fixed, except when he was fully aroused and attentive; but it became more difficult to make him dismiss his ideas and delusions. In the night he left his own bed for another and said he did not know he was doing it. His restlessness was due to a growing state of fear and anxiety and he talked vaguely about men and wagons coming to move him away. His heart symptoms improved but slowly and about a month after admission he became very troublesome, having developed well defined delusions that men were after him to kill him. He saw four men hanging over his bed. Tried to escape by jumping out of window. Begged to be saved, and insists that the delusions are real, pointing to his eyes and ears, saying that he knows what he sees and hears. He became more troublesome and the delusions of persecution more fixed until it became necessary to move him to the annex and put him under restraint. The delusions were very strong, and he seemed to be terrified, talking very confidentially and in pantomime. He was finally removed to Bayview Asylum, where, unfortunately, I lost sight of him.

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An Anastigmatic Spectacle Lens.—Spectacle lenses hitherto employed have had the disadvantage of blurring the image at the edge of the lens, caused by the astigmatism of oblique pencils of light. Much improvement in this respect over the old flat lenses, with an angle of distinct vision of 16 degrees, was secured in the meniscus and Toric lenses, which latter gives an angle of distinct vision up to 52 degrees. A further improvement in the angle of distinct vision up to 60 degrees is said to have been developed by von Rohr in the laboratory of Zeiss of Jena, who succeeded in correcting for all foci the astigmatism noticeable toward the margin of ordinary lenses by computing the power of each lens and its correction separately. Lenses have heretofore been made with the same base curve on one side for all focal distances, the grinding to fit any special error of refraction being done on the other side. In the improved lens both sides are ground after the computation above referred to, with a resulting angle of distinct vision practically equal to that of the normal eye without moving the head.

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HAY FEVER

ITS TREATMENT BY INJECTION OF A SOLUTION OF RAGWEED POLLEN

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OMAHA

Hay fever as a clinical entity has been recognized since about the beginning of the nineteenth century. It was first regarded as a catarrh. Bostwick, one of the earliest writers on the subject, connected it with the heat and sun rays and called it summer catarrh. It was a natural transition for the disease to be later called hay fever, as it was thought, at least by lay minds, that the odor of hay caused an attack. Similarly, the appellation "rose cold" was given to that variety which seemed to follow from inhaling odor of roses. The first definite connection between the pollen of plants and hay fever was recognized by John Elliotson, in 1830.

In the United States it was early noticed that there are two distinct conditions inducing hay fever, quite similar in nature, but occurring at different times of the year—one beginning about the last week in May and lasting until the second week in July, and another commencing about the second week in August and continuing until the first week in October. The latter form, it was observed, was by far the more common in this country. The first clear description of the two disorders was given by Wyman, in 1872, who recognized the pollen of ragweed as one of the causative agents of the autumnal form. Blackley also believed that the symptoms of rose cold, the early form of the disease, were caused by the pollen of the *Graminaceae*, or grasses.

About the time of the researches of Pasteur and Koch, hay fever shared the fate of a host of other diseases, and the attempt was made to establish an infectious etiology. This obscured, somewhat, the importance of pollen as a causative factor, and it was not until 1896, when George Sticker published his classical monograph on hay fever, that the theory of pollen etiology assumed a definite, scientific character. Even Sticker, however, believed merely that the pollen carried an irritating parasite which would eventually be discovered. It remained for Dunbar definitely to convince the medical world of the specific action of the pollen.

The most recent experimental and clinical work on hay fever has been done by Karl Koessler[1] of Chicago, whom I shall extensively quote.

A definition of hay fever, in accordance with our present understanding of the condition, would be: an exudative catarrh of the conjunctival, nasal and tracheobronchial mucous membrane, produced in hypersensitive individuals by the sensitizing and anaphylatoxic action of the pollen of certain plants.

There is a certain condition, or group of symptoms, which closely resembles the true hay fever, but it is in only a slight degree related to it. I refer to the disease formerly known as hyperesthetic rhinitis. This resembles hay fever only in so far that it is a coryza-like attack induced by any form of irritation to the nasal mucous membrane. It may occur at any time of the year and does not carry with it the general constitutional depression which is so characteristic of the true hay fever.

1. Koessler, Karl: In Forchheimer, Frederick: Therapeusis of Internal Diseases, D. Appleton & Co., 1914, v, 671.

As proofs of the etiologic relation between pollen and hay fever, or pollen disease, as it should more properly be called, the following may be offered:

First: If a few pollen grains, from one of certain members of the botanical group *Graminaceae*, such as rye, wheat, timothy, foxtail, etc., are inserted into the nostrils of a sufferer from rose cold, a typical attack of the disease is immediately produced. This may be done at any time of the year. Again, if a few grains of pollen from certain members of the botanical group *Ambrosia*, such as ragweed, golden-rod, asters, marigold, etc., are put into the nostrils of a patient subject to autumnal catarrh, an attack of the disease follows, even though the experiment be made in winter. Also, the action is specific, that is, pollen from *Graminaceae* will have no action on the autumnal catarrh man, and vice versa.

Second, and most conclusive proof:

It has been established experimentally that guinea-pigs can be readily sensitized to pollen protein by minute doses gradually increased, and, after a suitable incubation period, suffer a most severe anaphylactic shock on reinjection. Guinea-pigs were injected with serum from the blood of a patient suffering from autumnal catarrh, and later reinjected with a solution of 1 : 10,000 ragweed pollen, and a typical anaphylactic reaction resulted, thus proving that the guinea-pigs had been sensitized to pollen protein by that contained in the patient's serum. Control animals were not affected by the same dose of pollen protein.

I think we must conclude, therefore, that pollen from certain plants acts as a causative agent in at least a large majority of cases of hay fever. It has been found by experiment that of the members of the botanical group *Ambrosia* which produce this specific reaction the pollen from the ragweed is the most characteristic and representative. Consequently, ragweed is used exclusively to produce immunity reactions.

After the etiology of a disease is established, the next logical procedure should be to apply the knowledge gained, if possible, to therapeutic measures. The question at once arises, What is the pathogenesis of the condition? Accepting the fact that pollen protein is the causative factor in hay fever, what is deficient in the sensitive individual that allows the protein to act as a sensitizer? All explanations of immunologic phenomena are partially inadequate, but advance is made only by discarding parts of a given hypothesis and accepting those subject to proof. Consequently, some working hypothesis must be adopted.

The best explanation of the action of pollen in hay fever is that given by Koessler,[1] the substance of which follows: It has been known for some time that the bactericidal power of the nasal secretion is due to proteolytic enzymes. It is, of course, accepted that the pollen protein, at some season of the year, reaches the nasal mucous membrane of all persons. In most people the proteolytic enzyme present gradually splits the pollen, like any other foreign protein, into harmless products, proteoses and amino-acids. This cleavage occurs slowly, so that the poisonous group contained in every protein molecule is at any one time only in small concentration and is rendered inert, since the diffusibility is low. Thus, under normal conditions, the absorption of protein is exceedingly minute. However, there are certain conditions which interfere with the normal digestive function of the nasal mucosa, and in that case sufficient protein may be absorbed to

lead to sensitization. One such condition may be a lessened nasal secretion associated with a lowered quantity of proteolytic ferment; or another may be a stenosis of the nasal canals through hypertrophied turbinates, leading to excessive accumulation of inhaled matter. It is conceivable that there may be a number of conditions which interfere with the normal nasal secretion. Whatever the cause of the disturbance of the power of the nasal secretion to break up complex protein molecules, the important fact is that, owing to this deficiency, there occurs a parenteral intake of foreign protein. This has the effect of injuring the epithelial cells of the mucosa and the endothelial cells of the capillaries in such a way that the mucosa remains permanently in a state of increased permeability for the protein; also, and most important, it brings about a new function of these cells, consisting of the production of a specific protective ferment directed against the specific pollen protein—in other words, the local tissue becomes sensitized. This, at first local, sensitization gradually reaches every tissue in the body, and all fixed tissue cells become sensitized, which is only another way of expressing the fact that all cells attempt to protect themselves by throwing off this specific proteolytic enzyme. The tissues first injured, however, retain this specific protective power to the highest degree. Thus these cells remain permanently in a state of sensitization, and when the protein again comes in contact with the sensitized area during the following season, the protein is absorbed unchanged and broken up in the body. The effects of this process depend on the degree of concentration and quantity of the poisonous fraction split off. The first symptoms are obviously local—there occur sneezing, itching and burning in the nose, eyes and throat, followed by vasodilation extending to inflammation with continued absorption. It may readily be seen how, if the process advances far enough, the bronchial mucosa may be affected, either directly or possibly through the blood, thus producing the dreaded asthma.

Now, how shall we make practical use of Koessler's theory and of our knowledge of the characteristics of the disease? Two ways are open. One may attempt to combat the disease by adding some substance to the organism which will neutralize the poisonous fraction of the split protein molecule, this constituting passive immunization; or one may try to develop in the tissue of the individual a substance which will neutralize the poisonous fraction, thus producing active immunization.

Dunbar elected to immunize passively, and his well-known pollantin is the outcome of his efforts. He injected horses with gradually increased doses of ragweed pollen, with the expectation that a specific antibody would eventually be formed in the serum in sufficient amount for practical use. He hoped that by injecting this antiserum into a sensitized human being, he would be able to neutralize the effect of the protein poison. Thus he assumed that the pollen protein acted as a true toxin. He was rewarded with a moderate degree of success.

Active immunization in pollen disease has not been attempted until quite recently. It is true that Dunbar, in his work in passive immunization, injected solutions of ragweed pollen in some of his assistants who were sufferers from hay fever, but the strength of the solution was so great that the results were very alarming, and he rejected this line of investigation. In 1910, Noon and Freeman in England and Koessler in America, unknown to each other, made the first attempts at active immunization. The English writers worked with the rose cold variety, caused by pollen from the grasses, this being the form most common in their country. Consequently, their results are of value to us only in so far as they prove the correctness of the principle involved. In a recent article, Freeman reports eighty-four cases with a so-called complete cure in 30.5 per cent.—the disease greatly diminished with almost complete relief in 34.5 per cent., slightly diminished in 24 per cent., and no effect in 11 per cent. He concludes that active immunization with a pollen vaccine, whether judged by statistics or the experimental method, has succeeded, and that the immunity seems to last for at least one year after treatment has been discontinued.

Koessler of Chicago first began his work in active immunization in 1910. He used ragweed pollen and treated only cases of the autumnal catarrh variety. He was the first to report definite methods of preparing pollen solutions, and to him must be given the credit of placing this form of the treatment on a scientific basis. He gave injections both in a prophylactic way, before the appearance of the hay fever symptoms, and after the disease had been established. His results correspond closely with those of the English investigators. He reports 10 per cent. absolute cures, 70 per cent. markedly improved subjectively and objectively, 12 per cent. subjectively improved, and 8 per cent. not affected.

My own experience with this method of therapy began in August, 1914. I was unable to obtain any ragweed pollen until the time of the flowering of the plants. Consequently, my attempts at immunization have been confined to those patients who were already suffering from the disease. I feel certain that the desirable course is to give the injections before the symptoms appear, and thus to attempt to establish the immunity before exposure to the pollen. I found it exceedingly difficult to gather the pollen, owing to its extreme lightness. The plants were picked and placed in water over night, in a room where the air was not moving, and then with a camel's hair brush, the fine yellow pollen grains were brushed off into a dish. I obtained pollen from two varieties of ragweed, *Ambrosia artemisiaefolia*, or the common dooryard form, and *Ambrosia trifida*, or giant ragweed, which grows along marshy places.

I followed the technic of Koessler, with some slight modifications: Ten mg. of pollen from each variety is triturated with sterile silicon in an agate mortar. Twenty c.c. of a sterile salt solution ten times stronger than a physiologic is then gradually added and thoroughly shaken. The suspension is placed in the incubator for twenty-four hours and again shaken. The mixture is then centrifuged at a high rate of speed and the supernatant fluid pipetted off. This solution is a dilution of 1:1,000, and from it all others are prepared. First, it is diluted ten times with sterile distilled water to which has been added 0.25 per cent. phenol (carbolic acid). The salt solution is then a physiologic one, and is a dilution of 1:10,000. This dilution and all lower ones are unstable, and deteriorate by progressive proteolysis into a toxic product within ten days. The concentrated 1:1,000 solution is more stable and will keep, on ice, for about three weeks. It is needless to say that all manipulations must be carried on with aseptic precautions. I have

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made it a rule never to inject a solution until after plating on agar.

The unit of pollen toxin adopted by various workers has been of different sizes. I have adopted as a unit the amount of protein contained in 1/1,000,000 gm. pollen, or that contained in 1 c.c. of a dilution of 1:1,000,000.

I treated twenty-one cases; fourteen were objectively and subjectively relieved; in the other seven the treatment was incomplete for one reason or another. Two of these seven showed no reaction, either good or bad. Four more were certain that their attacks were lighter. One patient was undoubtedly made worse, a result which I think was due entirely to a mistake of judgment on my part in giving her a large dose without gradually working up to it. Three of the cases had a bad asthma complicating. Two of these were completely under control and the other was much relieved.

I feel that I lost much valuable time in the early part of the treatment in being too cautious, as I realized the possible alarming effect which might be produced by too large a dose of the vegetable poison. I believe a dose larger than seventy-five units cannot be given without producing unpleasant symptoms.

In fourteen cases in which a positive result was obtained, I observed this striking occurrence in each case: After a dose was given sufficiently large to obtain relief, the freedom from symptoms lasted only from two to five days, depending on the severity of the case. Then the symptoms returned, although they usually were not so severe. Another dose of the same size being then given, relief was again obtained. One is impressed with the fact that the immunity conferred was only of a transitory nature.

It is difficult to determine exactly what should be designated as a cure. Many years ago a great medical philosopher, who was no pessimist in regard to treatment, gave as an aphorism, "Nothing ever gets completely well." It is true that there are few disease processes which do not leave their impress on the organism in some chemical, anatomic or functional alteration. Our desire to apply the word "cure" to a treatment probably arises from the effort to keep pace with the medical charlatans who are only too anxious to guarantee so-called cures. So in hay fever—a disease which is extremely susceptible to all the changes in nervous control of the individual, with some symptoms exceedingly vague and influenced to a large extent by the imagination—it is very difficult to determine just what part this or that remedy plays in modifying the disease process, and in thus assisting in a cure.

Statistics concerning the effect of a therapeutic measure are decidedly unreliable as a guide. But few persons, and these only in rare circumstances, act on statistics alone. They act rather on experience, either their own or of others. When they do this they are on surer ground than when they rely on bare figures alone.

I have tried to be conservative in my interpretation of the results I obtained, but a very distinct impression remains that the injections have been of decided value in ameliorating the distressing symptoms. I shall expect more definite favorable results from treatment begun before the disease starts. I feel that much of the success of the treatment will depend on the judgment exercised to meet particular symptoms in each individual case. I have quite certainly satisfied myself that the treatment cannot be rigidly applied the same way to all cases. The known principles governing immunity, which are all too few, must be thoroughly understood and applied.

I am sure that Koessler was fully warranted in issuing the warning that much harm may result from the treatment unless certain precautions are taken, namely, the solutions must be sterile, they must be fresh, and they must be, as far as humanly possible, of uniform potency.

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PSEUDOMYXOMATOUS CYST OF THE APPENDIX WITH CALCIFICATION OF WALLS

REPORT OF CASE

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SAN ANTONIO, TEXAS

In referring to current and to text-book literature[1] I find that pseudomyxomatous cysts or retention cysts of the vermiform appendix are themselves a rarity or else are rarely reported. Hartman and Kindley[2] have summarized the former reports, the text-book accounts and the pathology of the condition. The formation of the cyst is, no doubt, due to chronic inflammation, occlusion and obliteration of the lumen of the appendix at or near the proximal end, together with a twisting of the appendix and subsequent adhesions to the surrounding structures. The history of the case which I wish to report coincides exactly with this theory of causation. Only one text-book of pathology out of the many which I consulted made any mention of calcification or calcareous degeneration of cyst walls. This pathologic change is the distinct feature of my case.

History.—White man, aged 22, railroad brakeman, 6 feet tall, weight 185 pounds, with negative family and personal history, was in Corpus Christi, Texas, four years ago, Sept. 10, 1909. That night he was feeling well and ate a hearty supper; later in the night he consumed a great quantity of olives. The next day he had an attack of acute indigestion which was diagnosed cholera morbus. This illness lasted for ten days; he complained at that time of pain in the right side in the region of the appendix, nausea, vomiting diarrhea and fever, which gradually subsided. After this the patient was well for three years. In the fall of 1912 the patient had a similar attack of gastritis, pain in the right hypochondrium and fever. A diagnosis of acute appendicitis was made by the physician who saw him at that time, but an operation was deemed inadvisable just then for some reason. Since this attack the patient has been well and strong and has suffered no inconvenience other than obstinate constipation. He complained, however, of something solid "tapping him on the inside" at the appendiceal region while he followed his daily work.

Oct. 3, 1913, the patient had a sudden chill, fever, aching limbs and a bronchitis, together with the additional symptoms of acute appendicitis. In other words, he had acute influenza complicated by acute appendicitis. His greatest pain was in the high appendiceal region.

Examination.—Palpation revealed a hard, irregular mass 1 inch above and 2 inches internal to McBurney's point.

1. The following articles may be referred to:
Corning: Albany Med. Ann., 1905, xxvi, No. 12.
Weinhold: Monatschr. f. Geburtsh. u. Gynäk., April, 1909.
Wilson: Lancet, London, 1912, ii, 1496.
Eden: Lancet, London, 1912, ii, 1498.
Hammerfahr: Deutsch. med. Wchnschr., 1913, No. 31, p. 1501.
Trotter: Brit. Med. Jour., 1910, i, 687.

2. Hartman, Henry, and Kindley, G. C.: A Case of Pseudomyxomatous Cyst of the Appendix, THE JOURNAL A. M. A., June 6, 1914, p. 1795.

Roentgenoscopy revealed a calcareous mass of rather irregular outline to the right of the fourth and fifth lumbar vertebrae. The roentgenogram clouded the picture of the case, and the diagnosis hinged between a calcified cyst of the appendix and a ureteral calculus.

Operation.—An anterior incision was made over McBurney's point. After breaking down of the adhesions, a hard calcified mass was delivered; this proved to be the appendix. An ordinary appendectomy was performed. Examination revealed a pseudomyxomatous cyst of the appendix, whose walls had undergone calcification. The length of the mass removed was 2½ inches and the breadth 1½ inches at the widest point. The walls of the cyst were calcified almost in entirety; the part not calcified was thickened, tough, fibrous tissue, and the muscular elements were scant. The cyst contents showed a mixture of pus and mucoid material. The base of the appendix contained the mucoid substance while the distal portion showed pus. The gross specimen was submitted to the Pathological Department of the University of Texas at Galveston, and the foregoing diagnosis corroborated.

THE RELATION OF PITUITARY DISTURBANCES TO PARANOIDAL TRENDS

HENRY W. KEMP, M.D.
NEW YORK

The more recent writings and monographs on the endocrine glands have afforded the medical profession a most fascinating field for study and experimentation. As the result, the somatic manifestations of secretory and other disturbances of these glands are fairly familiar and will not be dwelt on here.

In addition, however, to the pathognomonic somatic symptoms, disturbed functioning of the ductless glands gives rise to marked psychic phenomena of varying character and intensity, from idiocy and mental lethargy to the most agitated and apprehensive states. Thus far, I believe, these phenomena have failed to receive the attention which should be accorded them, and a great field is here opened to our American psychiatrists.

While the psychotic symptoms vary with the various glands affected, and in the same glandular disturbances in various individuals, yet in all cases I have seen of pituitary disturbance (not a large number, it is true), the mental symptoms have invariably been paranoidal in character.

If this statement be universally true, the possibility of paranoidal ideas being due to physical or chemical disturbances of the hypophysis has occurred to me. In the literature on the subject I have not as yet seen such a suggestion.

Our state asylums yearly treat about two hundred thousand cases of insanity. It would appear, should the superintendents of such institutions concur in their advisability, that a number of experiments on the treatment of paranoidal conditions might be advantageously conducted. The proof or falsity of the idea presented above could be demonstrated, and the value or worthlessness of suitable glandular therapy in this connection determined.

This suggestion is given for what it may be worth; and, should no connection be demonstrated between paranoidal ideas and pituitary disease, the results from a large number of carefully studied cases by such competent men would well repay them and the profession generally for the time and energy expended.

855 Fresh Pond Road, Borough of Queens.

CASE OF UNUSUAL TOLERANCE TOWARD BELLADONNA

SIDNEY H. ADLER, A.B., M.D., NEW YORK

History.—D. P., married woman, aged 31, first seen May 20, 1914, complained of severe cramp-like pains in the abdomen. She had been taking heroin hydrochlorid hypodermically for three years, owing to severe pains in the kidney regions, following several operations, and she desired to take some treatment for the cure of the habit.

Examination.—When first seen she was fairly well nourished. The heart and lungs were negative. Blood pressure was 115-85. The urine was negative. Nothing abnormal could be ascertained from abdominal palpation. The entire area around the kidney region was painful to touch. Otherwise the entire physical examination was negative.

Treatment.—The patient was prepared for the treatment by rest in bed, catharsis, and reduction in the dose of heroin to which the patient was accustomed; that is, we gave her the amount she said she was taking, and found that attacks of sneezing started toward the time the next dose was due.

May 24, the Townes-Lambert treatment was instituted. The mixture, tincture of belladonna (15 per cent.), 20 c.c., fluidextract of xanthoxylum, 10 c.c., and fluidextract of hyoscyamus, 10 c.c. was administered every hour, starting with 6 drops and advancing until 8 drops were given every hour. The dose was then advanced until it reached 16 drops. When this dose was reached, there were no effects noticed and orders were given to advance the dose until physiologic effects were evident. The dose was then run up until the patient was taking 48 drops every hour. To reach this limit the dose was increased by as much as 2 to 4 drops every few hours. Not understanding why such a great amount of belladonna and hyoscyamus could be tolerated without any symptoms except slight dryness of the throat, I called up the Townes Hospital and was told that the only suggestion they could make was that we had not a mixture containing tincture of belladonna 15 per cent., but that it contained only the U. S. P. 10 per cent. tincture. They were kind enough to furnish us with some of the mixture used in their hospital, and the patient was started on advancing doses, the first being 6 drops, and rapidly advancing doses had again no effect on the eyes, throat or skin. The mind was clear throughout, but instead of feeling drowsy, the patient had no desire to sleep. No increased irritability of the brain was noticed, nor was her speech confused at any time. For only one day did she need any aid to vision; in fact, to keep her quiet we gave her the paper and books to read.

When the dosage was again carried to 48 drops, it was held there and then slowly reduced to nearly normal dose.

The compound cathartic pills were administered as directed by Lambert.[1] Treatment was discontinued June 3, the patient having had but one dose of heroin in four days, and then only a single dose of 1/24 grain.

Tonic treatment, started toward the end of the treatment, was continued, and until the date of writing the patient has not taken any drug.

Comment.—This case was complicated by the severe pains in the kidney region, which persisted and necessitated examination.

The patient was referred to Dr. H. D. Furniss, who reported the kidneys normal, with no obstruction in either ureter or bladder. The only abnormality shown was in the ureter, which was being deflected by adhesions caused by previous operations. The kidney was fixed in a low position, the pelvis being at a level with the third lumbar vertebra.

Because of the great pain caused by the collargol injected into the ureter, the patient was given several doses of morphin sulphate, ¼ grain hypodermically.

The pains persisted through the greater part of the summer, but with returning strength and outdoor exercise they became less frequent.

1. Lambert, Alexander: The Obliteration of the Craving for Narcotics, THE JOURNAL A. M. A., Sept. 25, 1909, p. 984.

The dose of the mixture does not depend on the amount of drug taken by the patient, nor on the size, weight or length of time that the patient has been under the influence of the drug. Some patients, I was informed at the Townes Hospital, are under influence of the mixture while taking from only 2 to 4 drops, the average dosage being about 12 drops, and the greatest amount administered to any patient has been 30 drops.

It is impossible to state with precision the exact quantity which may cause death, belladonna with its component, atropin, being one of the substances whose effect, varying in different cases, seems to depend on special constitutional tendencies or idiosyncrasies of the individuals. Some persons can take a comparatively large amount with impunity, while others scarcely bear a very moderate dose without exhibiting unpleasant symptoms.

This case is reported because of the great tolerance to belladonna, the patient taking about 1 ounce of tincture of belladonna, 15 per cent., within twenty-four hours, for several days without toxic symptoms.

2493 Broadway.

ROUNDWORM WITHIN THE BODY OF A TONSIL

A. B. MIDDLETON, M.D., PONTIAC, ILL.

M. A., a girl, aged 8, of German parents, referred by Dr. E. M. Adams of Gridley, Ill., gave the following history: She was one of four children, all healthy; the father and the mother were the same. The parents say that the child was a fat girl till 2 years of age, at which time she had chickenpox, and has not been well since. When Dr. Adams first saw the child she was pale, anemic, thin, very much undersized for her age, with an adenoidal expression, etc. The mother says the child has had regular bilious spells for two or three days at a time once every three weeks; she never had sore throat, but is a constant mouth breather.

Both tonsils were enlarged and submerged, the right paler than the left. The child was operated on in the usual manner under a general anesthetic for the enucleation of the tonsils and adenoids. The child was on her left side, the right tonsil being in plain view. As the snare wire began to tighten, the tonsil was seen to rupture into the cavity. At once a whitish something began to present itself. Several visiting physicians, who were present, were invited to see what was thought to be an abscess cavity or large crypt empty itself of retained concretions; but the supposed concretions proved to be a roundworm that coiled itself on the roof of the mouth, making a spectacular demonstration for those present. After the worm had been removed carefully, the tonsil was taken out in the usual manner and divided, showing a cavity lined with a glycerin-like substance, which had been the home of the worm possibly for several years. Under a low power lens it was easy to see that it was a female *Ascaris lumbricoides*. These cases may not be unusual, but this is the first case I ever knew about in which a roundworm has been found in a tonsil.

The worm was about 1¼ inches long with a distinct head, and the tonsil was about the size of a medium-sized olive. Dr. Adams wrote me later that the child does not have the so-called bilious spells, enjoys good health, has a lively disposition and is getting fat.

Hat Pin Injury.—E. W., boy, aged 7, was riding in a buggy with his mother, January 24, and in some manner the point of her hat pin penetrated his right eyeball. For the next three or four days, the father used some medicine in the boy's eye that he had obtained from a physician for an inflamed eye of his own some months previous. January 29, I saw the boy for the first time; there was a large corneal ulcer completely covering the pupil and also a pronounced traumatic iritis. As far as I could determine, the lens itself was not injured. Even if the eye makes an uneventful recovery, there is practically total loss of vision because of the large ulcer.—E. A. HUNT, M.D., Burlington, Iowa.

Special Article

PRACTICAL PHARMACOLOGY *

(*Continued from page 588*)

VII

B. DEPRESSANTS: 5. OF THE HEAT CENTERS

ANTIPYRETICS AND ANALGESICS

The drugs of this group are classified conveniently under this heading, though they are seldom used therapeutically for the reduction of temperature alone. The discussion of their actions will be facilitated by a brief consideration of the regulation of body temperature in health and in fever.

There is no known anatomic center for the direct regulation of the body temperature, but there is certainly a coordinating mechanism, in addition to any local mechanism in the skin, whereby the temperature of the body is maintained both in health and in fever, and reference to this mechanism is made when the heat-regulating centers are mentioned.

The efficiency of the heat-regulating mechanism is shown by the fact that the production of heat may be increased 60 per cent. by taking food, or during severe exercise, without causing a rise in the temperature of the body.

Fever results from a change in the heat-regulating centers whereby they appear to economize the heat loss, so that while with any increase in the heat formation there is normally a compensating heat loss, during fever a slight increase in heat formation is attended with some increase in the loss, but not enough to prevent the temperature from rising to a given degree.

The centers do not lose control of the regulation, otherwise the temperature would continue to rise indefinitely, and in fact, during fever the centers are more sensitive to external changes in temperature and to the influence of drugs than normally. This increased sensitiveness may be looked on as the effect of stimulation of the centers by drugs or disease products. We may look on the antipyretic actions of the drugs of this group therefore, as depressant to the heat-regulating centers, preventing them from maintaining the higher temperature, which then returns toward normal. This conception led to Schmiedeberg's classifying the antipyretics of this group as fever narcotics.

The antipyretic effect of quinin is due mainly to diminished heat production through its peripheral actions; the other antipyretics of the group lower the body temperature through their central action which increases the elimination of heat, but quinin also has some central action, and the other antipyretics lessen heat formation, so that their actions differ mainly in degree.

It seems probable that fever may have a protective value in infectious diseases, since it appears to favor the formation of antibodies, and it is no longer held that hyperpyrexia is responsible for many of the pathologic changes which are found at necropsy, and which were formerly attributed to the febrile temperature which was therefore considered so dangerous.

* This is the seventh of a series of articles on useful drugs—on practical pharmacology for the general practitioner. As soon as completed, these articles, elaborated by additional subjects, will be published in book form.

It was owing to this erroneous view that the antipyretics had an enormous vogue soon after their introduction, and for a time there was intense activity in the search for new and better drugs of this type.

QUININ

It is commonly stated that the therapeutic use of cinchona, from which quinin is prepared, began with the treatment of the Countess of Chinchon in Peru in 1638, during an attack of malaria. The Jesuits employed it in the treatment of malaria in Europe, and from the foregoing circumstances it was variously called, Chinchona bark, Cinchona, Peruvian bark, Countess' bark, Jesuits' bark or simply "the bark." At present nearly all of the quinin of commerce is obtained from cinchona cultivated in India and Java.

Quinin is a protoplasm poison and is capable of destroying various forms of animal and vegetable cells. While it exerts its toxic action on such a variety of structures, it is extraordinarily active in destroying certain low forms of life. In 1867 Binz observed that in weak solutions it killed the paramecium of hay infusion at once, and that in very dilute solutions (1:20,000) it exerted a markedly toxic action on them, though they were much more resistant to the action of other poisonous alkaloids such as morphin and strychnin. These observations led Binz to the conclusion that malaria is due to a parasite which quinin is capable of destroying readily. The correctness of this conclusion has been abundantly proved, of course.

Since the great value of quinin in the treatment of malaria depends on its destructive action on these micro-organisms, it may be worth while to present briefly the more important facts concerning their presence in the human body.

It is known that when the anopheles mosquito bites a patient suffering with malaria it takes the malarial fever organisms into its stomach with the blood which it draws; that this blood contains asexual forms and smaller numbers of others which take on the sexual form and after passing through a cycle in the body of the mosquito, are injected with the saliva into the body of a person whom the mosquito bites later. These organisms, known as sporozoites, enter the blood and attack red blood-corpuscles, assuming a form which then multiplies in the blood. The sporozoite undergoes segmentation, and with the breaking up of the red blood-corpuscles and discharge of the young parasites into the blood there occurs a paroxysm of malaria, that is, a chill followed by a hot stage, presumably due to the discharge of toxins into the blood-stream.

Quinin is most destructive to the young parasites at the time they are discharged into the blood-stream, and it is important that the administration be so timed as to secure a sufficient concentration in the blood during the time that sporulation occurs. Unfortunately, in addition to the forms which quinin destroys readily, there are others which are more resistant and which may survive to become sources of infection through the anopheles.

The testimony of eminent authorities appears to be contradictory concerning the capacity of quinin to prevent an oncoming paroxysm. Thus Osler states that quinin has no power to prevent an oncoming paroxysm which attends segmentation; Ricketts states that quinin given some hours before the time of an expected paroxysm prevents segmentation and thus prevents the paroxysm. This is in accordance with the teaching prevalent in some malarial districts, and there can be little doubt that a large dose of quinin given four hours before the time of the expected paroxysm may prevent it, but it has no influence on a paroxysm which is just beginning.

The action of quinin on the blood and its capacity for causing hemoglobinuria have been the subject of much discussion. Quinin even in dilute solution is known to be capable of destroying both the red and the white cells of the blood in vitro. Hemoglobinuria has been observed frequently after the administration of quinin, which was therefore believed to be its cause. Hemoglobinuria may occur during malarial fever, however, without the administration of quinin, and the view now held by the most eminent authorities is that quinin is not the cause of the hemoglobinuria which sometimes follows its use in malaria.

It should be remembered that washed corpuscles behave differently toward various drugs in vitro from the way they behave when those drugs are injected directly into the blood-stream. For example, saponin destroys red blood-cells suspended in normal salt solution, but when a solution of saponin is injected into the blood-stream directly, the saponin is fixed by the cholesterin present in the blood and the red blood-cells escape injury. Binz states that 1 gm. (15 grains) of quinin hydrochlorate in 10 per cent. solution may be injected intravenously without causing injury to the blood. There would then be 1 part of quinin to about 5,000 parts of blood.

Very small amounts of quinin are capable of increasing the force of muscular contraction, but slightly larger amounts decrease the force and efficiency. This is of interest with regard to the action of quinin on the heart when large doses are given, and also with reference to the action on the uterus when quinin is used to increase the force of uterine contractions during labor. One can understand why it should sometimes have the desired effect and why it should sometimes fail, owing to the difficulty of adjusting the dose with precision. It seems probable that the action of quinin will be useful when induced at such a period that a few powerful contractions will suffice to expel the fetus; but if labor is not nearly terminated the induction of a few powerful contractions may be followed by weaker ones, and labor may be prolonged through its depressant action. Fortunately, it does not cause spasm of the uterus as many of the oxytocics do.

Quinin is not used for its action on the musculature of the heart, but it is of toxicologic importance. It is also of interest to note that cinchonidin is more poisonous to the heart and much less actively destructive to the malarial fever parasites. Cinchonidin was formerly much cheaper than quinin, which it resembles closely in appearance and in physical properties, and for which it was often fraudulently sold.

Quinin lessens the action of enzymes and of oxidation and it causes a diminution in the amount of heat formed in the body through its lessening metabolism by its action on muscles and glands. With small doses this diminution in the amount of heat formed does not cause a fall in the body temperature during health, because the heat-regulating centers compensate for the change by causing a diminished loss of heat. During fever quinin acts as an antipyretic (aside from its specific action in malaria), partly through this diminution in heat production and partly

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by depressing the heat-regulating centers. It is said that this influence in diminishing metabolism is useful in certain fevers by preventing an undue loss of protein but it is probably of little value in this way.

Quinin has only a slight analgesic action, and this has a limited field of application.

TOXICOLOGY

The prolonged use of quinin may result in injury to various organs, but the heart, the central nervous system, the gastro-intestinal tract and the kidneys usually suffer most in such cases.

Moderate doses of quinin commonly cause ringing in the ears which lasts for some hours; large doses may cause partial or complete deafness, the effect being brief as a rule, but occasionally permanent.

Dizziness, headache, nausea and vomiting with disturbances of the circulation and respiration occasionally result, and it may cause cardiac failure; disturbances of vision are rare. Skin rashes are fairly frequent.

The average fatal dose of quinin probably lies between 8 and 15 gm. (from 120 to 240 grains), much depending on the rate of its absorption.

ABSORPTION AND EXCRETION

Even the least soluble of the salts of quinin are absorbed fairly readily from the gastro-intestinal tract. In order to secure the more rapid action the more soluble of its salts are sometimes recommended, but there are occasions when an insoluble salt is preferred because of its less pronounced bitterness. The use of the sulphate in the United States affords an example of the force of habit, the hydrochlorate, which is used almost exclusively in England, being much more soluble.

Thayer states that the rate of absorption and its total amount vary widely with the solubility of the salt used and the form in which it is administered, absorption being retarded when it is taken with the food. In view of the importance of securing the absorption of quinin at such a rate that the requisite amount will be present in the circulation at the time of segmentation of the parasites, it is unfortunate that our knowledge of the subject is so imperfect.[1]

It is probable that too much importance has been attached to the influence of the degree of solubility of the salts of quinin on their absorption, and too little attention to the selective capacity of the gastro-intestinal tract for absorbing them. The question is in need of further investigation. The utmost care should be exercised to secure aseptic conditions, when a salt of quinin is injected subcutaneously or intramuscularly, because of its destructive action on the tissues, which leads to abscess.

Quinin usually begins to appear in the urine shortly after its administration, and almost the entire amount may be excreted within two days. A part is excreted into the stomach after its subcutaneous injection.

THERAPEUTIC USES

The chief therapeutic uses of quinin have been suggested in the foregoing discussion, and the subject requires only brief consideration here.

Quinin finds its principal field of usefulness in the treatment of malaria, being one of the few directly curative agents in the materia medica.

1. Guinea-pigs were used in a recent study of the absorption of quinin, but this would appear to be an especially unfortunate choice of animal because rodents absorb certain vegetable poisons from the gastro-intestinal tract very slowly, and apparently not at all, in some cases.

It is a matter of little importance, so far as the action is concerned, which of the salts of quinin is used, provided the one chosen is so administered as to secure absorption at such a rate that the blood will contain the quinin some hours before and during segmentation, or when segmentation would occur if it were not prevented by the drug.

Cinchonidin has been used in some cases when an idiosyncrasy, real or fancied, prevented the use of quinin, but the slight antimalarial action and the toxicity of cinchonidin render it an unsatisfactory substitute for quinin.

Quinin is an active antipyretic, and while it may be of some value during protracted fevers, such as typhoid, by reason of its lessening metabolism, and thereby preventing excessive destruction of protein, it is not certain that this advantage will outweigh its disadvantages in such conditions.

Its use during labor has been mentioned. While it does not cause spasm of the uterus, it is not always successful in facilitating the expulsion of the fetus.

Small doses may be used as a bitter for improving the appetite and digestion; large doses have an opposite effect. It is sometimes used at the inception of a cold, but its value in such conditions is problematic. It is also used as an antipyretic and analgesic in influenza, but it is probably less effective than phenacetin and salol. Opinions differ somewhat cocerning its value in the treatment of blackwater fever.

It would not be profitable to attempt to discuss the innumerable conditions and diseases in which quinin has been used with reputed success; many of these cases merely serve to illustrate the tendency which the body shows to recover regardless of treatment—even when it is distinctly injurious—and it should hardly be necessary to state that such an active agent as quinin should never be used without having a definite action in view.

Quinin and urea hydrochlorid has been used as a local anesthetic in the same way as cocain.

Quinin is a prophylactic against malaria, and those who are exposed to the bite of the anopheles in malarial regions should take it regularly; but it is of course more sensible to screen houses and destroy mosquitoes than to trust to quinin alone.

DOSAGE

The widest diversity of opinion exists in regard to the dosage of quinin in the prophylaxis and treatment of malaria. Some authorities advise as much as 2.5 gm. (40 grains) daily during the active treatment, and smaller amounts at stated intervals afterward.

A dose of 0.6 gm. (10 grains) of a salt of quinin administered about four hours before the time of an expected paroxysm, and this dose repeated in two hours, will suffice to prevent segmentation and the paroxysm in many cases. When the paroxysm is prevented the administration of quinin should be continued for several weeks. Some advise the administration of doses of 0.3 gm. (5 grains) three times daily for one or two months; others prefer the administration of somewhat larger doses on those days when the paroxysms would fall had they continued, and none on the other days. It seems more logical, however, to use the drug every day. It is especially unfortunate that these questions of dosage have not been determined conclusively, for the continued administration of quinin in large amounts is certainly capable of causing harm in many cases, but the dan-

ger of moderate doses for two months is far less than that of an attack of malaria.

The prophylactic dose of quinin is probably 0.6 gm. (10 grains) daily, preferably taken in two parts.

The tincture of cinchona, or the compound tincture, is generally preferred when the bitter effect is desired; the dose of either is 4 c.c. (1 fluidram) taken just before eating.

MATERIA MEDICA *

The comparative value and uses of the salts of quinin enumerated above are suggested by the following table showing the relative percentage of anhydrous quinin in each and also the relative solubility in water and in alcohol.

	Per Cent. of Anhydrous Quinin	One part soluble in water (parts)	One part soluble in alcohol (parts)
Quinin	85.5	1,750.	0.6
Quinin bisulphate...	59.5	8.5	16.
Quinin hydrobromid	76.6	40.	0.7
Quinin hydrochlorid	81.5	18.	0.6
Quinin salicylate....	69.9	77.	11.
Quinin sulphate.....	74.3	720.	86.
Quinin tannate.....	30.35	800.	3.
Quinin and urea hydrochlorid	60.	1.	....

Quinin and the several salts of quinin may be administered in the form of pills, capsules, cachets, tablets, troches, solutions and mixtures, but the form in which the article is administered should be adapted to the particular salt of quinin used. The solid forms, like pills and capsules, are, of course, adapted to any of the salts of quinin, while solutions of sufficient strength to be active can be made only by the use of the acid salts. Mixtures, on the other hand, are preferably used for the administration of the more or less insoluble alkaloid and tannate. A sirup of glycyrrhiza made by mixing one part of fluidextract of glycyrrhiza with three parts of sirup makes a satisfactory vehicle for any of the slightly soluble salts of quinin. A sirup of yerba santa, which was formerly much used as a vehicle for quinin, is now but seldom employed because it does not compare in elegance or efficiency with the sirup of glycyrrhiza outlined above or a sirup of chocolate, such as is generally used at the soda-water fountain of drug-stores. The commercial form of sweet chocolate is an excellent vehicle for quinin, either in the form of the sirup suggested above or as a simple mixture of quinin tannate or quinin alkaloid with the chocolate in the form of pastilles or troches.

In administering a mixture of quinin it is advisable to direct that the mouth be rinsed with a dilute solution of a weak alkali like sodium bicarbonate, before and after taking the dose of quinin, so as to avoid the bitter taste of a trace of alkaloid which may dissolve in the mouth.

SUBSTITUTES

Among the substitutes which have been proposed for the non-proprietary preparations of quinin are:

Euquinin, which is quinin ethyl carbonate and is claimed to have the same action as quinin with the advantage of being tasteless owing to its insolubility in water and alkaline medium. It is, however, sparingly soluble in water and readily soluble in alcohol and in acid liquids generally, and in solution possesses the characteristic bitter taste of quinin.

Saloquinin, a combination of salicylic acid and the salicylic ester of quinin, which is thought to have the advantage of combining the properties of quinin and of salicylic acid. It is practically insoluble in water but is soluble in acidulated water and moderately soluble in alcohol. Like euquinin, when held in the mouth for an appreciable length of time, it develops a distinct bitter taste and therefore cannot be said to be absolutely tasteless.

These complex salts probably have little or no advantage over quinin alkaloid and quinin tannate, which are much cheaper.

(*To be continued*)

* Owing to lack of space the materia medica of quinin has been largely omitted. It will be included when this series is published in book form.

Therapeutics

PREVENTION IS GREATER THAN CURE

(*Continued from page 591*)

XX

DIPHTHERIA (CONTINUED): PROPHYLAXIS IN SCHOOLS

When it is reported to a school board and to a board of health that a schoolchild is sick with diphtheria, it should first be remembered that with every discovered case probably one other missed case occurs. Of course the sick child is isolated. The other children of this family should have cultures taken from their throats to determine whether or not the Klebs-Loeffler bacillus is present; but without waiting for the results of this investigation, each should receive an immunizing dose of 1,000 units of diphtheria antitoxin, unless their history shows that they are asthmatics or sufferers from hay fever. As it takes from twenty-four to forty-eight hours for the Schick test to develop, it seems unwise, in the case of children who have been in close contact with the infected patient, to postpone the administration of the antitoxin, until a Schick test shows whether or not they are already protected.

These children should, of course, all be forbidden to attend school, and should be isolated as far as possible from other children. If the infected child comes from a tenement house where there are many children, the other children in this tenement should also be excluded from school until it is shown that their throats contain no Klebs-Loeffler bacilli.

If several cases of diphtheria occur one after the other or more or less rapidly in a schoolroom, or in different parts of a school, all of the children who are closely associated, either at their desks, or in classes, or as chums, should have their throats tested to ascertain who are the bacillus carriers. Instruction should be carefully given to the parents of the children who are well but have been positively exposed to diphtheria, to prevent their playing with unexposed children, thus possibly spreading the disease before it is ascertained that they are free from diphtheria bacilli.

General disinfection, by fumigation, of a schoolroom which has contained several diphtheria cases is considered by most advanced sanitary experts as unnecessary and of little value. If swabs from the throats of all the children in this room are taken and the room then closed for twenty-four hours and thoroughly sprayed and washed with germicidal solutions, the other children who do not belong to the infected families may return to the schoolroom as soon as the board of health has determined which throats carry

the diphtheria bacilli. It does not seem scientifically wise or economically sensible to close a schoolroom or a school building for an indefinite period when the foregoing measures will be effective in stamping out the disease.

A child whose throat and nose is found to be free from the Klebs-Loeffler bacillus may immediately return to school, provided he is not allowed to come in contact again with a new case of diphtheria. A child whose throat does contain the diphtheria bacilli, though he is not ill, should be isolated and treated with antitoxin if he has been recently exposed, or with the method suggested above for treating carriers, if he has apparently not been recently exposed. Under any circumstances, such a child should not be allowed in school.

The throats of the teachers and instructors in the schools in which diphtheria has occurred should also be tested. Other members of the family in which there is a patient with diphtheria should be examined and if they are found free from the bacilli and do not come in contact with the patient, they can with propriety live at home and attend to their regular occupation. This is on the supposition that the infected patient is properly quarantined (which means the kind of quarantine advised by the board of health), is attended by a physician, and is cared for by a nurse, or by one person who remains isolated with the patient, at least as far as close contact with others is concerned. There is no reason why the nurse should not change her clothing and go out for fresh air daily. She should not go into stores or ride in cars where she might give the disease to others, as she is likely to carry the germ in her own throat, though being herself immune.

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TREATMENT

A. Isolation

It should be again urged that a throat with spots or membrane should be considered as likely to be diphtheritic until a culture has proved it not to be. Such a patient should be isolated in the best room available, looking toward the possibility of the disease being diphtheria and a nurse being required. Other children of the family must be excluded from contact with this patient. If the case is clinically one of follicular tonsillitis, the physician may wait for a positive test before giving antitoxin. If, however, the case is clinically diphtheria, antitoxin should be given without a report being waited for, provided there is nothing in the history of the patient to show that there will be any hypersusceptibility to horse serum. If the disease is diphtheria, and the patient is in a tenement where it is impossible to carry out isolation, he should be removed to a contagious disease hospital, if the city has one. Whether it is follicular tonsillitis, or other streptococcic infection, or diphtheria proper, gargles and local cleanliness of the throat should be immediately inaugurated, and when this is properly carried out, the danger of infection of others is reduced to a minimum.

It is hardly necessary in this day, in which the advisability of sunlight, a large room, an adjacent bathroom, the absence of all unnecessary draperies, furnishings, rugs, etc., for a proper isolation room are so well understood, to describe the needs in detail. Instruction should be given the family in the minor details of the prevention of infection of others. A properly trained nurse well understands the necessity for burning wooden tongue depressors, wooden swabs, the gauze and cotton used around the patient's nose and mouth, and washcloths; the use of liquid soap; simple but effective cleanliness of the patient's face, hands, and body; boiling of all eating and drinking utensils; disinfecting the toothbrush with non-poisonous germicides; allowing the bed clothing and bed garments to stand in germicidal solutions before being sent to the wash; frequent washing of her own hands in germicidal solutions; and gargling her own throat with peroxid hydrogen solutions. These are all subjects of general knowledge by physicians and nurses.

B. General Care of Patient

High fever is not frequent in diphtheria, unless the case has been neglected. Consequently, the patient should receive, almost from the beginning, plenty of nutritious food. The exact diet, of course, depends on the age of the patient. The frequency with which the nutriment is given depends on the amount that is taken; if the nourishment is liquid and in small amount, it should be given every three hours. The food should represent all the elements that the patient needs for nutrition, namely, a considerable amount of protein, a goodly amount of starch, sugar, iron, salt and fruit salts, and plenty of water. Milk, oatmeal gruel, eggs, meat juice well salted, toast, butter, and the whole, or the juice, of one or two oranges, would represent the food needed. With or without meat, it is well to give a diphtheria patient iron, and no preparation is better than the tincture of iron chlorid in 5-drop doses, three times a day, given in fresh lemonade or orangeade, after nourishment.

However well the gastric juice inhibits the growth of the bacteria, it is always wise for a patient to gargle, or be sprayed, before taking food, so that the mouth and throat will be as clean as possible.

The bowels should be moved daily by some simple laxative, if they do not move without such help.

While a diphtheria patient should have plenty of fresh air and all the sunlight possible, he should be kept warm. He should not be allowed to become chilled, as the toxins of this disease cause depression and the patient's temperature may be quite low, and the hands and feet easily become cold. Even if the temperature is high, the bathing should be by warm sponge bath.

C. Antitoxin

The Revision Committee of the Pharmacopeia will probably decide that the average dose of diphtheria antitoxin should be stated in the next Pharmacopeia as 10,000 units. Recent investigations by Schick[1] show that the dose of antitoxin advisable for ordinary cases of diphtheria can be based on the weight of the individual. Schick finds that 100 units of antitoxin per kilogram of weight is sufficient to combat the toxin in diphtheria in all ordinary cases, and in severe cases 500 units per kilogram is more than sufficient. In other words, enormous doses of antitoxin are not needed, which has long been the belief of Park of New York. This is especially true if the antitoxin is given early. A kilogram equals 2 1/5 pounds avoirdupois, and a child weighing 45 pounds, in an ordinary case of diphtheria, should be given 2,000 units of antitoxin; while if the case is severe, or in nasopharyngeal or laryngeal types, 10,000 units would be all

1. Schick, B.; Kastowitz, K., and Busacchi, P.: Experimentelle Diphtherie Serum-Therapie beim Menschen, Ztschr. f. d. ges. exper. Med., 1914, iv, 83. The Proper Dosage of Diphtheria Antitoxin, editorial, THE JOURNAL A. M. A., Dec. 12, 1914, p. 2134.

sufficient. By the same method of decision as to the dose, an adult of about 130 pounds should receive 6,000 units in a mild case, and 30,000 units if the diphtheria is of malignant type, or has affected parts where the danger of absorption is greater.

It seems quite probable that if such doses could be administered on the first day of the infection with the Klebs-Loeffler bacillus, no more antitoxin will be needed in such cases, and that death from this disease will be reduced to a minimum. It may be wise to give a young child a smaller dose, but it has not been shown, with the concentration of the serums now offered, that locally any harm is done by this injection, or that systemically (except in patients who have received antitoxin in longer or shorter time before, or in patients who are asthmatics or hay fever subjects, or are particularly susceptible to emanations from horses), antitoxin ever does any harm. A slight rash will occur in about half the cases in which antitoxin is used, but such simple eruptions are harmless. The rash may be scarlatiniform in type, or papular, or urticarial. It may occur within a few hours after the injection, or may not occur for some days. If it is in large amount, there may be increased temperature. Mild albuminuria is apparently no more liable to occur from the antitoxin injection than it is from the diphtheria.

The subject of antitoxin injection and dosage has been ably considered by Dr. Woody[2] and by the physicians who discussed his paper. Woody advises that when both tonsils are covered with exudate of more than one day's duration, the smallest dose of antitoxin should be 30,000 units. If both tonsils and the soft palate show membrane, and especially if the nose is involved, and the history shows a duration of three days or more, he would give 150,000 units as the smallest amount. When the nose alone is affected, he believes 20,000 units should be the dose; and in laryngeal diphtheria 30,000 units as the smallest dose is advised. If the case has been a neglected one and there are serious symptoms of toxemia, and especially in nasopharyngeal cases, in which the absorption of toxins is so rapid, he recommends the administration of from 50,000 to 150,000 units. While this dosage seems large, we should note the conclusions offered by Woody after his extensive tabulated experience, namely, that with these large doses there is more rapid local cure and quicker improvement in the patient's general condition, a permanence of the cure, an avoidance of complications, a reduction of mortality, and withal, such dosage is apparently harmless.

Dr. Park of New York, in discussing Woody's paper, advises nearly as large doses, namely, 5,000 units in mild cases, 10,000 in severe, and 20,000 in malignant cases. In toxic cases in which the danger is serious and imminent, he would use the antitoxin intravenously, stating that "10,000 units intravenously is worth 100,000 units subcutaneously." He states his belief that "40,000 units will save any patient that 1,000,000 will."

In a more detailed discussion of diphtheria, Woody[3] brings out some points which we should continually bear in mind. He says: 1. "Diphtheria is essentially a local disease whose harmful effects are produced by certain toxic substances elaborated by the diphtheria bacillus."

2. "The toxin of diphtheria readily reaches all portions of the body by means of the lymphatic circulation." This toxin shows a tendency to attack the kidneys, the nervous system, and the heart. The action of this toxin is inhibited only by the formation of antitoxin in the body, or the introduction of antitoxin into the body.

3. He classifies untoward symptoms following the use of diphtheria antitoxin as: (*a*) Those that occur in eight or ten days after the first injection with symptoms of fever, rash, joint pains, and at times slight albuminuria and edema. In Woody's experience this form of serum sickness occurs in 30 per cent. of the cases of antitoxin injection. (*b*) A similar reaction which may occur after a second dose of antitoxin, provided the source of the antitoxin is the same (that is, the same animal has been used), and which will come on more rapidly and be more intense and last a shorter time. (*c*) Anaphylactic shock or collapse, which he has elsewhere stated to be rare, which may occur after a second injection, and occasionally after the first one.

Smith[4] and Park[5] have shown that when antitoxin is given subcutaneously, it takes from three to four days before the maximum amount of antitoxin is circulating in the blood. If the antitoxin is given intramuscularly this period is shortened. From these findings, therefore, the conclusion should be made that if the case is urgent and the toxemia serious, antitoxin should be administered intravenously; if the case is severe and the diagnosis has not been made early, antitoxin should be given intramuscularly; in ordinary or mild cases, and on the first day or two of the disease, it may be administered subcutaneously.

D. Care of the Throat

It would be just as sensible to perform a major operation with the most perfect technic and yet take no means whatever of preventing infection, as it is to administer antitoxin in proper dose in diphtheria and then to take no proper care of the throat. It should be remembered that diphtheria is primarily a local disease, that the antitoxin combats only the toxins of the Klebs-Loeffler bacillus, that other germs are always found in a diphtheritic throat, and that local putrefaction and septic infection readily occur if the throat and nose are not properly treated. While the antitoxin is hastening the throwing off of the membrane or inhibiting its further formation, the surface of this membrane must be washed off or cleansed gently, but frequently. All odor and all danger of secondary infection are removed by proper treatment of the part affected. Although germicides cannot kill the germs deep in the mucous membrane, or those that are protected by an overlying exudate, a certain large portion of the surface bacteria are surely killed by as simple a gargle as hydrogen peroxid solution. More active and more irritant germicidal gargles or germicides that are sources of danger when swallowed, are entirely unnecessary in diphtheria.

If the child is old enough to gargle or swash the tonsils, this is the best method of cleansing the throat. If the child is not old enough, thorough spraying of the throat should be done. A solution of one part of the official Aqua Hydrogenii Dioxidi to 3 parts of warm water, freshly prepared each time, should be used as a gargle, every one and one-half or two hours

2. Woody, S. S.: The Use of Antitoxin in Diphtheria, THE JOURNAL A. M. A., Sept. 5, 1914, p. 861.
3. Woody, S. S.: Pennsylvania Med. Jour., February, 1914, p. 339.
4. Smith: Jour. Hyg., 1907, vii, 205.
5. Park: Boston Med. and Surg. Jour., 1913, clxxiii, 73.

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during the day, and every three hours during the night. Three or four minutes after this gargle has been used, it should be followed by some simple alkaline wash, to remove the irritant effects of the hydrogen peroxid. A gargle that may be used for this secondary cleansing purpose is a teaspoonful of boric acid added to ½ glass of warm water. This will not all dissolve, but will deposit on the throat and act as a mild antiseptic. Also, there is no greater promotor of mucous secretion of the throat than boric acid; and the more the mucus is secreted, the quicker will the membrane be loosened. Or, a simple solution of ¼ teaspoonful of salt and ¼ teaspoonful of sodium bicarbonate may be added to ½ glass of warm water. The object of such a gargle and wash is to cleanse the mouth and throat of froth and pieces of membrane, mucus, mucopus, etc., and to soothe the membrane. It is frequently advisable to insufflate boric acid directly on the masses of membrane or exudate. This should be done by the physician.

After the throat has been cleansed all that is possible, it is often of value to apply tincture of iodin to the membrane or exudate. Care must be taken not to touch the healthy membrane with this solution. Lugol's solution may be applied to the parts of the throat that are not affected, which often tends to prevent development of more exudate or membrane. If there are pockets and crypts in diseased tonsils, after cleansing such, boroglycerid may be applied to heal and to prevent spreading of infection.

As frequent gargling is very tiresome for the throat, swashing is nearly, if not quite, as efficient, and should be suggested. If the child is too young to gargle or swash, the peroxid should be sprayed on, and the solutions for this purpose should be stronger, namely, 1 part to 2 parts of warm water. The cleansing spray may be used afterward. If the throat and mouth generally are irritated, a soothing gargle is as follows:

	Gm. or c.c.	
℞ Acidi borici.....	2	gr. xxx
Potassii chloratis.....	5	ʒ iss
Aquae menthae piperitae....	200	fl ʒ vii

M. Sig.: Use undiluted as a gargle, as directed.

Of course, any other flavor than peppermint could be used in this mixture.

Whether or not it is advisable to use a weak hydrogen peroxid solution in nasal diphtheria is a question for individual decision of the physician; generally it is too irritant, even when used weak, and is inadvisable. Cleansing mild alkaline solutions or boric acid solutions represent the most successful treatment of nasal diphtheria used as sprays or snuffed through the nostrils. Such mild, warm solutions may be poured from a small vial or from a teaspoon into the nostril, with the head thrown back. It is inadvisable to use any of the douches that are on the market, or any syphon douche, as the pressure is too great, and fluid is often forced up the eustachian tube or into some of the sinuses. Suprarenal extract may be added to these solutions, if deemed advisable, but it should not be used too frequently. Also, the nose should not be sprayed too frequently.

As soon as the throat is clean, the frequency of the gargles should be diminished, but it should be several days before the patient is not awakened at night to gargle at least once, or better, twice.

The treatment of the throat advised for diphtheria is equally applicable to follicular tonsillitis or scarlatinal throats, and to septic sore throat.

E. General Medication

A diphtheria patient requires very little general medication, unless some complications occur. In the beginning a small dose of calomel, or a dose of castor oil may be advisable, and subsequently whatever simple laxative is needed to cause a daily movement of the bowels. The temperature does not often call for treatment. If it is high, or there is headache and backache and general aches, two or three small doses of a coal-tar antipyretic may be given. The following combination for a child 10 years old is efficient:

	Gm.	
℞ Acetphenetidini	1	āā gr. xv
Phenylis salicylatis.....	1	

M. et fac chartulas v.

Sig.: A powder every three hours, if needed.

Later, if the temperature is high, tepid sponging is sufficient, but generally, with the ordinary low temperature of diphtheria, hot sponging for cleanliness and to increase the activity of the skin, and to remove the perspiration, should be done once or twice daily.

As suggested above, every patient with diphtheria should receive iron, either the tincture of iron chlorid, a few drops in fresh lemonade, or a 3-grain tablet of eisenzucker, three times a day, or 0.10 gm. (1½ grains) of reduced iron, in capsule, three times a day. If there is a tendency for the throat or nose to bleed, it can do no harm to add lime water to the diet, and it may be of value.

On account of the nervous depression caused by the toxins of the Klebs-Loeffler bacillus, a small dose of strychnin, not exactly as a cardiac stimulant, but more as a nervous stimulant, is advisable, provided the condition of the patient seems to require it. For a child 10 years old, 1/60 grain of strychnin sulphate, once in six hours, is generally a sufficient dose. If the child is made nervous by strychnin, it should certainly be withheld. A little coffee or tea may be given a child, as a medicine for the action of the caffein, and is of value.

(To be continued)

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

TYPHOID VACCINE (See N. N. R., 1914, p. 259).

Lederle Antitoxin Laboratories, New York City. Schieffelin and Co., New York.)

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CANTHARIDIN (See THE JOURNAL, Jan. 2, 1915, p. 53).

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SATURDAY, FEBRUARY 20, 1915

FAR-REACHING EFFECTS OF LEAD POISONING

To one who contemplates the manifold physiologic activities which are called into progress during the period of gestation in the female, it is not surprising that damage of any sort, whether it be a physical injury or a chemical intoxication, may bring untoward consequences to both the maternal organism and the fetus. The metabolism of the mother is intimately bound up with the nutrition of the young she bears. The transmission of harm, like the communication of disease, follows as a more or less obvious consequence of the intimate connection between the female and her developing offspring. Defective conditions may accordingly affect the embryo independently of any purely hereditary factor. They are, so to speak, the result of a detrimental uterine environment.

The possibility of harm transmitted through the medium of the male is not equally obvious. The germ cell of the male is, of course, the carrier of conspicuous hereditary qualities which manifest themselves in unmistakable fashion in the offspring. This is not equivalent, however, to the contention that damage to the male may deteriorate the germ cell in a way that expresses itself by defective offspring. Nevertheless, the experiments of Stockard[1] on guinea-pigs and of Cole and Davis[2] on rabbits have indicated that alcohol has a deleterious effect on the germ cells of the male.[3]

Lead poisoning in industries in which individuals are exposed to lead in its various forms is reputed to have a detrimental effect on the offspring of the workers, whether male or female. Half a century ago Constantine Paul reported striking observations on the effects of paternal lead-poisoning—cases in which in the course of his work the father was subjected to plumbism, the mother being unaffected. He obtained the history of thirty-two pregnancies of this order; twelve of them resulted in the death of the fetus before term; twenty children were born alive, but the mortality among them was extremely large, only two surviving the third year.[4] Children so born were found particularly liable to various nervous affections. These unusual statistics have not, so far as we are aware, been refuted.

In the department of experimental breeding at the University of Wisconsin, Cole and Bachhuber[5] have clearly shown the effect of lead on the germ cells of the male, in rabbits and fowls, as indicated by their progeny. Their method involved the ingenious device of double mating, which consists in breeding a female of a certain type to two males of unlike type at the same period. In this way the male parentage of the offspring can be recognized by their distinguishing characters. One male was treated with lead, the other remained free from intoxication. It is unnecessary to quote here the actual statistics of these breeding trials. They lead to the conviction that the young produced by male rabbits which have been poisoned by ingestion of lead acetate have a lower vitality and are distinctly smaller in average size than normal offspring of unpoisoned males. In fowls likewise the poisoning of the male parent with lead results in offspring of a distinctly lower average vitality.

The outcome of these investigations furnishes food for reflection. Lead poisoning and the opportunities for it are by no means rarities. There are more than a hundred occupations in which industrial lead poisoning may more or less readily occur, and the cases of known intoxication from such sources reach into the hundreds in some of the larger cities. Plumbism may appear under most peculiar clinical guises and with most unexpected histories. These newly recognized features of the effects transmitted to a second generation complicate its manifestations more than ever.

SANITARY INVESTIGATION OF NAVIGABLE WATERS

The sanitary investigation of navigable waters, authorized by Congress in August, 1912, has been undertaken by the Public Health Service. Three types of waters were selected, the Ohio River, the Potomac River and the coastal waters along the Atlantic and Gulf shores. The watersheds of these present fundamental problems, the solution of which will be of great economic as well as sanitary value. The Ohio River is a source of water supply as well as a means of sewage disposal. The Potomac is a tidal river and is the home of great shell-fish industries. The salt waters of the ocean shores furnish no water supply, but are the receivers of sewage, and the situation of shell-fish beds. The results of the investigations of these fundamental types are expected to serve as a standard in subsequent investigations of a similar nature.

1. Stockard: The Effect on the Offspring of Intoxicating the Male Parent and the Transmission of the Defects to Subsequent Generations, Am. Naturalist, 1913, xlvii, 641.
2. Cole and Davis: The Effect of Alcohol on the Male Germ Cells, Studied by Means of Double Matings, Science, 1914, xxxix, 476.
3. Alcohol and Racial Degeneration, editorial, THE JOURNAL A. M. A., Dec. 21, 1912, p. 2261.
4. The data are given by Adami, J. G.: Osler's Modern Medicine, 1907, i, 44.
5. Cole, L. J., and Bachhuber, L. J.: The Effect of Lead on the Germ Cells of the Male Rabbit and Fowl as Indicated by Their Progeny, Proc. Soc. Exper. Biol. and Med., 1914, xii, 24.

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The Ohio River was chosen for the study of the fundamental principles of sewage disposal and the natural processes of self purification of streams. Its length, nearly a thousand miles, and the fact that it has numerous towns and cities along its whole course, make it peculiarly appropriate for such investigation. Cincinnati, Pittsburgh, Wheeling, Portsmouth, Louisville and Paducah were selected as the centers from which to pursue the study, because at these points large amounts of sewage are discharged into the river; at some of them, industrial wastes from coal mines and iron and steel plants complicate the problem, and others are situated on or near the junctions of tributary branches where dilution can be observed. The work embraces the study of the extent, character and population of the watershed of the Ohio, the amount and character of sewage discharged, the effect of the sewage on the river and the river on the sewage, and a complete hydrographic survey of the stream and its various branches. Each substation covers from 15 to 40 miles of the river, and samples of water are collected daily and submitted to bacteriologic, biologic and chemical examination. In this way it is expected to determine the precise point to which the river can be utilized as a means of sewage disposal, while still maintaining the maximum of usefulness to the country bordering it. The sanitary survey of the Ohio River as thus outlined is nearing completion, and the data obtained will soon be available for the use of all concerned.[1]

In the same way, an exhaustive study of the Potomac River has been made, and in addition to the same problems presented by the Ohio there is also the relation of the shell-fish beds to other conditions of the river. When oysters growing in these waters are found to be contaminated with sewage, the problem is whether to remove the oyster beds or treat the sewage discharged in their vicinity. A similar question is involved in a study of the coastal waters of Chesapeake Bay and its estuaries, the gulf and its estuaries, Mississippi Sound, etc.

All the questions involved in the sanitary survey of navigable waters are of immense interest to the public health. Not only is this recognized by the communities most directly affected by rivers and sea coast, but also it is becoming more and more a concern of the whole nation. In this connection it is interesting to note that an extensive study of the boundary waters between the United States and Canada has been made by a joint commission from the two countries. This was authorized by the treaty of Jan. 11, 1909, between the United States and Great Britain, in order to fulfil the agreement of the same treaty, that the boundary waters shall not be polluted on either side to the injury of the health or property on the other.[2]

1. Annual Report of the Surgeon-General, U. S. P. H. S., 1914, p. 97.
2. Month. Bull., New York State Department of Health, December, 1914, p. 423.

OILLESS COD LIVER OIL

The experimental study of the alleged nutrient value of so-called cod liver oil cordials, published in this issue by the chemist of the Connecticut Agricultural Experiment Station, Mr. J. P. Street,[1] will serve to expose in an authoritative way the unwarranted claims that have long been suspected by thoughtful students of nutrition. No one will gainsay that cod liver oil, as a natural fat, possesses the energy-yielding attributes of other representatives of this class of foodstuffs. Like other fats, it is readily digested and utilized in the body. There is nothing either unique or remarkable in this behavior. The disagreeable features of cod liver oil, from the point of view of palatability, have as a rule outweighed its availability as a nutrient, not to mention the economic question of the comparative cost of energy obtained in this form. This will help to explain why interested manufacturers have been so eager for many years to retain the reputation of the widely heralded name and at the same time avert these seemingly insuperable objections to the natural oil. The result has been the exploiting of products which are alleged to "represent" the oil, retaining all the virtues without the disagreeable oil itself.

Street's carefully conducted comparative observations under experimental conditions of maintenance and growth, well suited to bring to light the alleged efficiency of a group of widely advertised "oil-free" cod liver oil preparations, leave little to commend the latter. Certainly the alcohol which they contain in quantities up to 18 per cent. cannot be credited with any unusual nutritive or restorative potency; nor is the occasional presence of sugar worthy of peculiar emphasis. Indeed, cod liver oil itself is so far superior to these depleted "extracts" in its contribution to the nutritive functions that the claims of the latter need no longer be seriously considered. Common sense and experiment are in accord on this point.

The fact that a metabolizable fat like cod liver oil is thus clearly superior to the cordials which apparently derive their sole merit from the name which they have appropriated should not lead any one into the other extreme of enthusiasm for the natural product referred to. It is true that recent investigations by Osborne and Mendel[2] have indicated a potency of cod liver oil to promote the growth of certain animals in ways not shared by all of the naturally occurring fats, notably lard, olive oil and almond oil. McCollum and Davis and Osborne and Mendel have likewise found, on the other hand, that this growth-promoting efficiency is common to butter fat and egg yolk fat, either of which are more easily obtained and certainly more readily consumed with relish than is the unpalatable cod liver oil. There seems to be no reason,

1. Street, J. P.: The Comparative Nutrient Value of Cod Liver Oil and Cod Liver Oil Cordials, THE JOURNAL A. M. A., this issue, p. 638.
2. Osborne, T. B., and Mendel, L. B.: The Influence of Cod Liver Oil and Some Other Fats on Growth, Jour. Biol. Chem., 1914, xvii, 401.

therefore, for calling on the shelves of the druggist to supply the nutrient virtues which are found in cream and butter and eggs that are a welcomed component of the dietary of persons of all ages. Where cod liver oil might be "indicated," it is quite as rational, certainly cheaper, and admittedly less distasteful to supply these common food products. Above all, let us keep foods and drugs apart; each group has its field of usefulness, but the "combinations" are likely to have no more justification or merit than the extravagant mixtures of antiquated polypharmacy.

POSTANESTHETIC GLYCOSURIA, PURITY OF ETHER, AND DIET

The attention of American physicians has been called somewhat insistently of late to the alleged dangers of traces of certain impurities, notably acetaldehyd, which may occur in ether used for anesthesia; this has been coupled with the advice to use a certain brand claimed to be free of acetaldehyd. The statements as to the supposed harmful effects of these "impurities" have been decidedly indefinite, and no satisfactory evidence has been presented for their correctness.

Recent studies by Ross and Hawk[1] indicate that one result, postanesthetic glycosuria, which may follow the administration of ether and which has been attributed to the presence of "impurities," has nothing whatever to do with these. In a series of experiments on dogs, these investigators found that the administration of ether containing none of the foregoing impurities was followed, other conditions being equal, by the same degree of glycosuria as when one of the ordinarily used brands of ether was employed. There were, however, very marked differences in the manner in which animals reacted to ether, whatever its source; but these differences were found to be due to the character of the food: all dogs which had received a carbohydrate-free diet became glycosuric after ether, whereas none of those receiving a diet containing carbohydrates reacted in this manner.

These experiments show the danger of concluding, because some ethers contain traces of acetaldehyd, and because some patients may have glycosuria after ether, that the acetaldehyd and similar substances are the cause of the latter; experiments show that pure ether will have this effect if the patient is predisposed to it by certain dietary, and perhaps other, habits. Chemists and manufacturers who claim that the U. S. P. tests for the purity of ether are insufficient should present better evidence than they have so far done.

Aside from this aspect of the question, however, the publication of Ross and Hawk is of interest as another illustration of how the factor of diet is often overlooked in the study of the actions of drugs and poisons. In this connection reference may also be made to recent experiments by Opie and Alford,[2] who showed that diet exerts a profound influence on the toxicity of certain substances, namely, chloroform, phosphorus, potassium chromate and uranium nitrate, which cause necrosis of the parenchymatous cells of the liver or of the kidney; the susceptibility to intoxication with all of these substances was less after a diet rich in carbohydrates than after a diet consisting of meat. Of interest in this connection are also the experiments of Hunt,[3] performed some time ago in the Hygienic Laboratory at Washington when, among other results, it was shown that the administration of dextrose diminished the toxicity of acetone for animals.

1. Ross, E. L., and Hawk, P. B.: Postanesthetic Glycosuria as Influenced by Diet, Body Temperature and Purity of the Ether, Arch. Int. Med., December, 1914, p. 779.

RADIANT ENERGY AND CATARACTS

The pathologic tissue changes which result in an opacity of the crystalline lens of the eye, in the development of cataract, are still obscure. Beyond the admission that the alterations induced affect the proteins of the parts involved, little of a convincing nature can be said. Obviously one of the fundamental questions concerns the effect of radiant energy on the lens and the humors of the eye. Radiation from a quartz mercury vapor lamp, such as the now familiar Cooper-Hewitt type, can readily be made sufficiently intense to coagulate egg white and solutions of serum proteins and thus render opaque the mediums in which they are dissolved. The effective rays in bringing about this change of state in the proteins lie in the ultraviolet region of the spectrum. An investigation by Dr. Burge[4] at the Nela Research Laboratory has demonstrated that neither the radiant energy from Cooper-Hewitt lamps of 2,400 candle power, or from Mazda nitrogen-filled lamps of illuminating brilliancy, nor the light of the electric furnace or the sun produces comparable coagulating effects on the protein of the normal lens or the vitreous or aqueous humors, provided that the heat effects are properly excluded. A continuous exposure of 100 hours failed to affect the transparency of these structures in the cases investigated under conditions in which egg white was coagulated within an hour.

Here is an apparent anomaly. If radiant energy in the form of short wave lengths is allowed to fall on proteins, it is absorbed and sooner or later the albuminous substances are converted into a coagulated form. Other things being equal, the rapidity with which this change takes place depends on the intensity of the ultraviolet radiation. The fact that the unmodified lens proteins fail to coagulate in the same way under the influence of short wave lengths which readily

2. Opie and Alford: Jour. Exper. Med., 1915, xxi, 1.

3. Hunt: The Effects of a Restricted Diet and of Various Diets upon the Resistance of Animals to Certain Poisons, Hyg. Lab. Bull. 69, U. S. P. H. S., 1910.

4. Burge, W. E.: The Effect of Radiant Energy on the Lens and the Humors of the Eye, Am. Jour. Physiol., 1914, xxxvi, 21.

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change the serum proteins, for example, suggests that some as yet unexplained adaptative provision or protective device is present in the complex lens and humors of the eye. Radiations from the infra-red, or the visible regions of the spectrum, cannot coagulate either the modified or the unmodified lens protein, provided the coagulation due to heat be excluded.

The importance of the chemical character of the solvent mediums of these eye components is made evident by Burge.[4] The lens protein can be modified by solutions of calcium chlorid, magnesium chlorid, sodium silicate or dextrose too weak of themselves to affect the transparency of the lens, so that ultraviolet radiation can precipitate the modified lens protein and hence produce opacity of the lens. Analyses of senile cataractous human lenses show that calcium, magnesium and in lenses from India, silicates are greatly increased in this type of cataract. The assumption is made that the accumulation of these substances modifies the lens protein in such a way that the short waves of the spectrum can precipitate the protein, thus producing the opacity of cataract. The assumption is further made, in the case of diabetic cataract, that the accumulation of sugar in the liquids of the body so modifies the lens protein that the short waves of the spectrum can produce opacity; hence the prevalence of cataract in this disease.

The hypotheses of Burge are, of course, little more than tentative suggestions, in the light of which at least two factors in the genesis of cataract deserve further consideration. One of these concerns the modification of the lens protein by altered nutrition or the incidence of disease; the other relates to the radiation of short wave lengths by which this modified protein can be coagulated. It is an interesting fact, though perhaps little else, that those solutions of salts and organic substances which so alter the lens protein that the short waves can precipitate it, at the same time decrease the fluorescence of the lens. This suggests to Burge that there may be some relation between the latter property and the great resistance of the normal lens protein to ultraviolet radiation.

Current Comment

A CRYSTALLIZABLE URINE PROTEIN

No sooner has the keen observer in these days had his attention directed to some feature of unique pathologic interest than his alertness is rewarded by the discovery of new cases. The Adams-Stokes syndrome, not long since looked on as a novelty, has already ceased to occasion the surprise with which its characteristics were once heralded. The finding of an albuminous substance in the urine comparable in some way with the long-known Bence-Jones protein has ceased to present the rarity of clinical medicine that it did a few years ago. At present the aspects of this proteinuria most discussed relate to the origin of the albuminous substance characteristic of the condition and to the pathologic significance of the urinary product. Recently we discussed some evidence that the food intake is not the decisive causal factor in the origin of the Bence-Jones protein.[1] Most of the cases on record have a history of multiple myeloma, so that this symptom has served to differentiate the disease from other bone lesions. In view of the fact that this text-book statement is likely to stamp Bence-Jones proteinuria with a definite significance for some time to come—as early dogmatic statements in science usually do—it seems worth while to record the occurrence of a new, carefully studied case in the Hamburg-Eppendorf Allgemeines Krankenhaus,[2] in which the existence of myelomatous disease was denied on the authority of a competent pathologist after careful examination of the bone-marrow. This raises the question as to whether there is a diversity of closely related proteins of pathologic import which exhibit the general behavior, in the urine, that is described for the Bence-Jones substance. In reference to this aspect of the subject it may be added that the protein in this newest German case could be separated in crystalline form from the urine. There are a few other instances in the literature of the chemistry of the urine in which crystallization of excreted protein is recorded, notably the spontaneous crystallization first observed by Byron Bramwell and Noël Paton in 1892. Most investigators who have had an opportunity to work with the assumed Bence-Jones protein have not succeeded in obtaining it in that condition of individuality and purity which the crystalline form is commonly believed to guarantee. Failure, however, to crystallize a protein—at best a difficult task—cannot yet be made the basis of diagnostic discriminations. In calling attention to some of the novelties with respect to the Bence-Jones protein we are more than likely to stimulate the discovery of new relationships in reference thereto.

WINTER FLIES

The winter season, naturally, is not the period in which most persons are likely to take measures to prevent the breeding of flies. In the summer, when the flies are thick, the wish will be frequently heard that preventive precautions had been taken. In the course of an inspection, January 7, by the sanitary bureau of New York, in response to complaints regarding a heap of manure, dirt and rubbish not far from a public school in a crowded district of the city, a rather startling state of affairs was revealed. The heap of manure was found partly covered with tar paper and rubbish in which, despite the cold weather prevailing—and there had been not long before a series of days with the temperature well down toward zero—flies were observed to be actively breeding. The *Bulletin*[3]

1. The Origin of Bence-Jones Protein in the Urine, editorial, THE JOURNAL A. M. A., Oct. 24, 1914, p. 1481.
2. Schumm, O., and Kimmerle, A.: Ueber das Vorkommen eines krystallisierbaren nicht koagulierbaren Eiweissstoffes im Harn bei einem Fall von Magencarcinom, Ztschr. f. physiol. Chem., 1914, xcii, 1.
3. Weekly Bull., Dept. of Health of City of New York, Jan. 16, 1915.

remarks, "This emphasizes the importance of properly caring for horse manure throughout the year and teaches anew why the filthy fly is always with us." Until definite precautions are taken during the winter to prevent the accumulation of heaps of filth and particularly piles of horse manure, in exposed situations under conditions favorable for breeding, the fly will probably continue to be the nuisance and the serious danger to health that it has always been. But it must not be forgotten that whenever we are ready to get rid of the fly nuisance, our boards of health can accomplish this purpose without enormous trouble, probably after the first year without much additional expenditure in the budget, and with little annoyance to the public generally. When it is recalled how much the absence of this undesirable pest would mean for children alone in our crowded city life, it should not be long before there is a general awakening to the necessity of taking the now well-recognized precautions during the winter that will secure great limitation, if not entire obliteration of fly breeding.

THE HEALTH OF OUR SUMMER RESORTS

Many of our summer resorts have acted on the policy that a good climate, charm of location and beauty of scenery are sufficient inducements to attract the summer visitor; but nowadays people are more wary and wisely look for more than this before selecting a vacation playground. The visitor wants a clean bill of health from the resort he has chosen, and is entitled to have one. Vacation typhoid is becoming known as a serious hazard. The prudent recreation seeker now finds out in advance whether or not this infection prevails at the place he has in mind, and furthermore learns what sanitary measures are being taken there to safeguard the health of the summer colony. The town of York, Maine, has recently taken steps that at once place it in the forefront of progress as far as health is concerned. The way the problem was met may well serve as a model for other summer resorts. Last year there were a number of cases of typhoid fever at York. No attempt was made to conceal the fact of the existence of the disease and its extent. The authorities very properly felt that the way to meet any danger was to face it in the open. An expert was invited to come to York and make a sanitary survey. The chief recommendation of the expert was that York needed a full time health officer. The town appropriated $2,500 a year for this purpose and appointed Mr. William Eustis Brown, a graduate of the School for Health Officers of Harvard-Technology, to the newly created position. The town of York is now spending one dollar per capita per year for health, a larger sum than is appropriated by any other American city directly for a like purpose. "Public health is purchasable," the price is moderate, and York shows by its action that it intends to enjoy the best attainable protection from disease. Other summer colonies will find it to their advantage to follow the example of York, and take the necessary measures to safeguard their citizens and the strangers within their gates. People are now advised to demand the security of health that only a well-ordered sanitary department can furnish. Our sea-shore and mountain resorts can no longer depend on nature and luck for a clean bill of health.

RAILWAY ACCIDENTS IN 1914

Accident Bulletin 52 of the Interstate Commerce Commission for the year ended June 30, 1914, shows that there was comparative improvement in the number of accidents on the steam railways of the United States during the year. The total number of casualties for the year was 202,964, of which there were 10,302 killed and 192,662 injured, a decrease compared with the previous year of 662 in the number killed and 7,646 in the number injured. It is to be regretted that the claim of one or two of the larger roads of the country that no passengers were killed on their roads during the year does not apply to all roads, for among the number killed, 265 were passengers. Of the remaining number of killed, 3,259 were employees and 6,778 were other persons classified as trespassers and non-trespassers. It is astonishing to find that doubling the number of employees killed does not quite equal the number killed of persons in no way connected with railroad operation or management or traveling as passengers. It is likewise surprising to note that among the total casualties, 202,964, the killed numbered 409 employees, and the injured 113,274 from "industrial accidents," defined in the Bulletin as "accidents not involved in train operation, but occurring to railway employees, other than trainmen, on railway premises." The total number of employees injured was 165,212, the number of passengers 15,121, and the number of other persons 12,329. While these figures represent a decrease from 1913 of 6,205 injuries to employees, 1,418 to passengers and 23 to other persons, and of 456 employees, 138 passengers and 68 other persons killed, the vast and seemingly unnecessary disproportion between the employees and others killed and injured who have nothing to do with operating or riding on trains undoubtedly calls for further improvement in operating methods, as well as for greatly increased care on the part both of employees and the public to prevent the casualties which are unquestionably the result of individual carelessness.

BLOOD AND RESPIRATION AT MODERATE ALTITUDES

In recent years our knowledge of the conditions pertaining to life at high altitudes has been greatly enriched by careful scientific investigations carried out in various parts of the world, among others at Pike's Peak, Colorado, by the Anglo-American Expedition of 1911.[1] Among other facts brought out is the observation that the pressures of carbon dioxid and of oxygen in the alveolar air decrease progressively with increase of altitude. At any rate, in persons acclimatized at altitudes of 5,000 to 14,000 feet — the latter corre-

1. Anglo-American Expedition to Pike's Peak, editorial, THE JOURNAL A. M. A., Aug. 10, 1912, p. 449.

sponding to Pike's Peak — the lowering of the carbon dioxid pressure is in direct proportion to the diminution of the barometric pressure. It has been estimated to amount to about 10 per cent. of the sea-level value for each 100 mm. of diminution of the barometric figure. The increase in the red corpuscles of the blood at considerable heights has likewise been commented on in these columns.[2] It has become desirable to obtain supplementary data on the effect exerted at somewhat lower ranges of altitude, below the 5,000-foot level. These have been gathered by Miss FitzGerald,[3] a competent worker in this field of research. The localities chosen were in the Southern Appalachian chain, among the Blue Ridge Mountains in North Carolina, at altitudes ranging from 2,210 to 3,850 feet. The new facts elicited support, or correspond with, those collected at greater heights. In persons acclimatized at these altitudes the partial pressure of carbon dioxid in the air of the lung alveoli is invariably lower than at sea-level, so that the lung ventilation is correspondingly increased. As at higher altitudes, the percentage of hemoglobin in the blood is increased, in accord with the previously published view that for every 100 mm. fall of atmospheric pressure the percentage of hemoglobin is augmented by about 10 per cent. of the normal value for men at sea level. The same features apply to women, though greater irregularity obtains in connection with the observations on them.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Sanatorium Incorporated.—The Ozark Sanatorium has been incorporated at Hot Springs with a capital stock of $75,000 by Drs. Thomas E. Holland, William V. Laws and William T. Wootton.

Hospital Notes.—The mayor of Little Rock urges the erection of a city hospital at a cost of $150,000, the funds for same to be secured by a bond issue. He also suggests that the institution shall retain the name Logan H. Roots Memorial Hospital.—The Quorum Court of the Fort Smith District has appropriated $2,000 toward the erection of a detention hospital in the city of Fort Smith. The building will be located on the grounds of the Sebastian County Hospital.——The dean of the medical department of the University of Arkansas recommends the establishment of a state hospital in connection with the department which will make possible the advancement of the college to the class "A" rank. The proposed location for the hospital is in the rear of the old State House.

ILLINOIS

New Medical Society.—The Freeport Academy of Medicine and Surgery was organized, February 5, with an initial membership of 18 and the following officers were elected: president, Dr. William B. Peck; vice-president, Dr. Dupuytren L. Mease; secretary, Dr. Theophil J. Holke; treasurer, Dr. Edgar J. Torey.

2. Altitude and Blood-Corpuscles, editorial, THE JOURNAL A. M. A., Feb. 3, 1912, p. 344; Physiologic Features of High Altitudes, Sept. 21, 1912, p. 942; The Blood Phenomena of Altitude, July 26, 1913, p. 283; The Influence of Altitude on the Blood, Nov. 1, 1914, p. 1634.

3. FitzGerald, Mabel P.: Further Observations on the Changes in the Breathing and the Blood at Various High Altitudes, Proc. Roy. Soc. (B), 1914, lxxxviii, 248.

Scarlet Fever at Decatur.—February 6, Decatur was placed under general quarantine by the State Board of Health on account of an epidemic of scarlet fever. It was reported that there were about 100 cases in the city and regulations were adopted as to visiting public places, violating quarantine rules, etc.

State Civil Service Examination for Food Bacteriologist.—On April 3 an examination will be held at Anna, Carbondale, Chicago, Dunning, East St. Louis, Elgin, Jacksonville, Kankakee, Lincoln, Macomb, Mt. Vernon, Peoria, Pontiac, Springfield, Urbana and Watertown to provide an eligible list for the position of food bacteriologist in the Chicago office of the State Food Commission. The salary at present is fixed by law at $1,800 a year. The limits recommended by the State Civil Service Commission are $150 to $175 a month. The examination will be open to non-residents, as well as residents, of Illinois over 25 years of age.

The duties of the position involve making bacteriological examinations (and interpreting the results of such examinations) of milk, ice cream, eggs, meat, tomato products, etc., in accordance with the dairy, food and sanitary laws.

Chicago

Personal.—Dr. Norman H. Weston dislocated his right wrist and ankle in the Central Y. M. C. A. Gymnasium, February 10.——Dr. Edward B. Weston, for many years secretary-treasurer of the National Archery Association of the United States, has resigned on account of impaired health.

Opening of the Municipal Sanatorium.—Unique in public institutions is the Chicago Municipal Tuberculosis Sanatorium which was dedicated February 16, in that at the time of the dedicatory exercises, the buildings were ready for occupancy; the heat, light, power and refrigerating plants in operation; the roads and paths laid out; the bulbs set out, shrubs and grass planted; meat was in the refrigerators, the bakery was in operation, food and other supplies were in place, beds made, and porch klondikes and summer sleeping kits all ready for use. To-day the sanatorium could take in 500 or more patients and care for them as well as if the institution had been in operation for ten years. The dedicatory exercises were attended by about 2,000 people and this, considering the distance from the city and the coldness of the day, is a marked evidence of the general public interest taken in this life-saving project. After prayer by Father Peter J. O'Callaghan, Dr. Theodore B. Sachs, president of the board of directors, gave a short address chiefly historical in character, and presented the gold master-key with key ring and tag suitably inscribed to Health Commissioner Dr. George B. Young, who accepted the key on behalf of the mayor who was unable to be present on account of illness. Senator Glackin who made the sanatorium possible by introducing the bill in the legislature, and Director W. A. Wieboldt also made addresses. At the conclusion of the dedicatory ceremonies, nurses were in attendance and conducted the guests through the institution. All buildings excepting the gate lodge, superintendent's house, garage and farm buildings are ready, and these are from one-half to two-thirds completed. The opening of the institution for patients will be delayed for about ten days that the staff personnel may be completed. Sites have been selected, plans prepared, and sewer, water and heat connections prepared for cottages for 300 additional patients and these buildings will be erected as soon as the necessity arises. Dr. J. W. Coon, formerly superintendent of the Wisconsin State Sanatorium, Wales, is superintendent and the greater part of the professional and lay staff has already reported for duty.

INDIANA

Personal.—Dr. Lewis C. Griffith, Bowling Green, who was charged with setting fire to his drug store, was found not guilty by a jury in Clay Circuit Court, February 12.——Dr. Emma Martin of Otterbein sailed February 5 for Peking, China, where she will become superintendent of a new missionary hospital under the auspices of the Methodist Episcopal Church.

Child Welfare Exposition.—A child welfare exposition is being held at Tomlinson Hall, Indianapolis, February 16 to 25. Many of the state departments and many health associations are participating, as it has the active support of both the state and the city board of health. The reason for this exposition is to show that prevention is better than cure. Model rest rooms, nurseries, kindergartens, summer mis-

sions and child's libraries are in operation, together with demonstrations in domestic science and of ideal school rooms.

Legislative Action.—All bills before the state legislature in regard to health officers have been indefinitely postponed. ——The pharmacy bill which was intended to raise the standard of pharmacy in the state has also been killed.——The eugenic bill has been changed to apply to both men and women by the house and as the senate struck out the feature applying to women, it will also probably be killed.——The bill establishing an examining and licensing board of chiropractors has been amended to such an extent that it would require three years of nine months each of attendance at a chiropractic school and also place the head of the department of anatomy at Indiana University and the head of the department of physiology of Purdue University on the examining board.

IOWA

Health Survey of Cities Planned.—The State Board of Health intends to abandon the method of requiring periodical chemical and bacteriologic examination of water supplies in favor of the more scientific method of surveys under the direction of a civil and sanitary engineer of the State Board of Health, who has been working along this line since the reorganization of the board.

Personal.—Drs. Edward T. Alford and William H. Bickley, Waterloo, have opened a clinical laboratory in Waterloo under the charge of Dr. Ivey, formerly of Mobile, Ala.——Dr. G. Walter Barr, for nearly a quarter of a century a resident of Keokuk and for eight years secretary and executive officer of the Keokuk Medical College, has been appointed efficiency engineer on the staff of the president of Highland Park College, Des Moines.

Small-Pox in Chiropractic School.—The discovery of a case of small-pox in a student in the Palmer School of Chiropractic, Davenport, has led to the threat by city physician, Dr. George M. Middleton, Davenport, to close the school to all pupils who refuse to be vaccinated. The chiropractic method of treatment and prevention will not be recognized. The neighboring city of Rock Island, Ill., also reports a number of cases of the disease.

MARYLAND

Sanatorium for Negroes.—The city health officer of Cumberland has recommended the establishment of a sanatorium on Haystack Mountain for the care of negroes afflicted with tuberculosis.

Personal.—Dr. William Lee Smith, Riderwood, who has been confined to his bed for the past three weeks, is slowly improving.——Dr. Newell A. Christensen, in charge of the accident ward of the Mercy Hospital, Baltimore, has resigned.

To Improve Bay View Asylum.—The Board of Estimates of Baltimore city has given authority to Dr. J. Hall Pleasants, Jr., Baltimore, president of the supervisors of city charities to spend about $10,000 in improvements at Bay View Asylum. It is proposed practically to rebuild the tuberculous ward at a cost of $5,000.

Warns Against Bubonic Plague.—That Baltimore is gambling with the health of the people and the commerce of the port against the probability of an epidemic of the bubonic plague and that preventive measures ought to be taken to prevent a development of the plague here was stated by Dr. William C. Rucker, Washington, D. C., of the U. S. Public Health Service, in an address before the Public Health Conference, recently held in Baltimore. He made it plain that every municipality that failed to take preventive measures is likely to find itself in the position of New Orleans, where the government, state and city authorities were spending hundreds of thousands of dollars to wipe out the bubonic plague, which might have been prevented, had there been a rodent survey of the city. The federal government has been willing to cooperate with the city authorities of Baltimore in making a rodent survey, but the city has refused to appropriate any money for such a purpose, although Health Commissioner Gorter has asked for such an appropriation.

MICHIGAN

Personal.—Dr. Eugene Grignon, Menominee, is ill in St. Joseph's Hospital, Marinette, as the result of a cerebral hemorrhage, January 31.——Drs. Collins H. Johnston and Ralph C. Apted have been elected directors of the Grand Rapids Antituberculosis Society.

Believes in Public Meetings.—Dr. Edward T. Abrams, Hancock, a member of the State Board of Health, recently advocated that the public be asked to attend the meeting of the Houghton County Medical Society, at which three papers were to be read on small-pox and vaccination. This he felt would be a good means of giving the public a better understanding of the importance and value of vaccination in the prevention of threatened epidemic small-pox in northern Michigan.

Small-Pox in the Upper Peninsula.—Small-pox exists in nearly every copper country town and in many of the iron country towns. The outbreak at Crystal Falls is said to be the worst in the history of the upper peninsula, although the disease itself is present as yet only in a mild form. There have been no deaths. Dr. Joseph A. Crowell, Iron Mountain, has been appointed a special agent of the State Board of Health to investigate the situation in that vicinity.

MINNESOTA

Personal.—Dr. William G. Crumley, Rochester, has been appointed consulting intern in the American Hospital, Paignton, Devonshire, England.——At the annual meeting of the Antituberculosis League of Olmsted County held in Rochester, January 13, Dr. Charles H. Mayo was elected president and Dr. Walter DeW. Shelden, vice-president.

No Leper Colony for Minnesota.—Dr. Henry M. Bracken, St. Paul, secretary and executive officer of the State Board of Health, calls attention to an item in THE JOURNAL of January 23, and states that there are now only eight known lepers in the state, and three of whom no trace can be obtained. Of these eight cases, five patients are living at home and not endangering the people in their community or in their own homes, and are under proper care and treatment. The other three patients are dependents and are being cared for by their respective counties. Dr. Bracken approves a federal leprosarium, but considers the plan exploited in the lay press and mentioned in THE JOURNAL as an absurdity.

Antituberculosis Plans.—Dr. Robinson Bosworth, St. Paul, announces that the advisory commission of the State Sanatorium for Tuberculosis will ask for an appropriation of $750,000 for county sanatoriums.——At a meeting of representatives from Blue Earth, Nicollet, Brown, Watonwan, Faribault, Waseca and LeSueur counties held at Mankato, January 30, a joint sanatorium to cost $150,000 was suggested.——Yellow Medicine, Lac Qui Parle, Chippewa and Renville counties have arranged for the establishment of a sanatorium to cost $60,000.——Grant, Stevens, Douglas and Polk counties are to have a joint sanatorium to cost $60,000. ——Plans are being made for a joint sanatorium at Austin, for Steele, Dodge, Freeborn and Mower counties.——The State Advisory Commission is endeavoring to arouse public sentiment in Carleton that it may cooperate with Pine, Kanabec and Isanti counties in the establishment of a joint sanatorium.——It is also hoped that Kitson County will cooperate with Marshall and Roseau counties in plans for tri-county sanatorium.

Mayos Give Million for Research.—After long consideration the Drs. William J. and Charles H. Mayo have recently consummated their plans for the endowment of the graduate medical instruction and research work which has for years been a feature of the Mayo Clinic at Rochester, Minn. The result is the incorporation of "The Mayo Foundation for Medical Education and Research, Incorporated," with an initial endowment fund of $1,500,000. The founders are: William J. Mayo, Charles H. Mayo, Henry S. Plummer, Edward Starr Judd and Donald C. Balfour. The board of temporary trustees having in charge for the present the investment of the fund is composed of Bert W. Eaton, George W. Granger and Harry J. Harwick. The board of scientific directors is composed of Louis B. Wilson, William F. Braasch, E. Hessel Beckman, A. H. Sanford and Walter D. Sheldon. For the present the expenses of the foundation will be met by annual contributions from the Mayo Clinic, the income from the endowment being allowed to accumulate and increase the principal.

MONTANA

Personal.—Dr. Thomas D. Tuttle, Warm Springs, superintendent of the Tuberculosis Sanatorium, Galen, has resigned to accept the position of commissioner of public health of the State of Washington.

Surveyor-General Suggests Changes for State Health Board.—The surveyor-general of Montana is said to have

announced his intention of suggesting changes in the personnel of the State Board of Health. These changes provide that the board be made up of the governor, the attorney-general, the state veterinarian, one practicing physician, one chemist with a knowledge of bacteriology, one civil engineer with experience in municipal engineering and one dairyman.

NEW JERSEY

Medical Club Organized.—A medical club, to be known as the Aesculapian Club, recently has been organized among the younger practitioners of Jersey City, with twelve charter members, and the following officers have been elected: president, Dr. Charles B. P. Kelley; vice-president, Dr. George H. Mueller, and secretary-treasurer, Dr. David L. Russell.

Hospital Opened at Riverside.—The Zurbugg Memorial Hospital, a monument to the late T. Zurbugg, for years head of the Keystone Watch Company at Riverside, who left $250,000 to establish the institution, was officially opened by Mrs. Zurbugg with the handing of the keys to Dr. Alexander H. Small, Riverside, chief surgeon. February 12 Mrs. Zurbugg announced that the present quarters represent only the beginning of the work planned by her husband. The hospital in the remodeled mansion of the Zurbugg's will later be converted into a nurses home when a new hospital capable of caring for the sick of Burlington County, will be erected on grounds adjoining.

NEW YORK

Gift to the University of Buffalo.—Property valued at $125,000 has been given to the University of Buffalo by the Woman's Educational and Industrial Union, to be used as a coeducational college of liberal arts and sciences and on condition that within one year the university will raise $100,000 for endowment and that three free scholarships for women be maintained annually in the College of Liberal Arts and Sciences.

Personal.—Dr. John Van Duyn, Syracuse, celebrated the fiftieth anniversary of his entry into practice, February 5. On February 23, Dr. Van Duyn is to be the guest of honor at a banquet given by the Onondaga County Medical Association.——Dr. J. Wilson Poucher, surgeon in chief of St. Francis' Hospital, Poughkeepsie, gave a buffet luncheon recently to twenty-six members of the medical and surgical staff of the institution.——Dr. Albert Vander Veer of Albany has been chosen for regent of the University of the State of New York to succeed himself by unanimous vote in both houses of the legislature. The term is for twelve years.

Antivaccination Measure.—The Jones-Tallett bill which opposes the compulsory vaccination of schoolchildren except when there is an epidemic of small-pox in the locality of the school has been up for hearing. It is reported that Health Commissioner Hermann M. Biggs, New York City, and other officials favored the measure while many physicians from all parts of the state came to Albany to oppose its passage. Among those opposing the bill were Dr. Lewis K. Neff, New York City, chairman of the legislative committee of the State Medical Society; Dr. William J. Cruikshank, Brooklyn, representing the Kings County Medical Society; Dr. Abraham Jacobi, New York City, and Dr. Franklin C. Gram, Buffalo.

Civil Service Examinations.—The New York State Civil Service Commission announces that an open competitive examination will be held in various cities throughout the state February 27, for Director, Division of Communicable Diseases, salary $4,000; open to men only, physicians of not less than five years' standing and not more than 60 years of age; and for Director, Division of Public Health Nurses, salary $2,500; open to women only, physicians or registered nurses. All competitors must execute application blanks and file them with the commission on or before February 23. The examinations are open to residents and non-residents without restriction, but all candidates must be full citizens of the United States.——It is announced that twenty applications have been received for the position of superintendent of the new Onondaga County Tuberculosis Hospital, for which a civil service examination is to be held, February 27. The position is open to male physicians, licensed to practice in the state and the salary is $2,500 and maintenance for the superintendent and his family.

Semicentennial of Health Department.—At the February meeting of the New York Academy of Medicine, the program of which was arranged by the board of health, Dr. S. S. Goldwater presented a letter to the council of the academy stating that "For some time health authorities have been much concerned regarding the definite increase in the mortality of the higher age groups, an increase manifesting itself particularly in certain degenerative diseases like arteriosclerosis, Bright's disease, cirrhosis of the liver, apoplexy and certain malignant diseases like cancer. Much has been accomplished in recent years in saving infant lives, but it seems difficult to arouse people, or even the medical profession to the surpassing importance of instituting hygienic measures for persons in adult life. Dr. Charles F. Bolduan, director of the Bureau of Public Health Education, has been conferring with a number of prominent health authorities and suggests that something spectacular is needed to initiate a campaign to combat this increased mortality. Plans have therefore been discussed for holding an exhibiton of adult hygiene in this city in 1916, the fiftieth anniversary of the organization of the department of health. The dignity and effectiveness of this exhibit will be increased if it is held under the auspices of the Department of Health of the City of New York, the Department of Health of the State of New York and the New York Academy of Medicine and the American Museum of Natural History. The council of the academy recommended that the academy approve of this scheme and take part in this exhibit.

New York City

Personal.—Dr. Ernest Everett Just was presented with a gold medal at the annual meeting of the National Association for the Advancement of Colored People by Governor Whitman for special research work in physiology and zoology.——Dr. Thomas W. Carey has resigned his position on the staff of the Willard Parker Hospital and has gone to Washington, D. C.

Plan Million Dollar Hospital.—At the annual meeting of the Beth Israel Hospital Association, February 11, it was announced that a new hospital building is planned to be erected on Livingston Place. It will be twelve to fifteen stories in height and accommodate 500 patients. A special feature of the hospital will be the accommodations for persons of moderate means who do not wish to be charity patients and yet are unable to pay high charges for services and attendance.

NORTH CAROLINA

Salisbury Recommended for State School.—The special legislative committee of the 1913 assembly filed its report, January 26, recommending the removal of the State School for the Blind, from Raleigh to Salisbury.

Personal.—Dr. George W. Shipp, Newton, has been elected physician for Catawba County.——Dr. Chalmers M. Van Poole, Salisbury, who has been seriously ill at his home for several weeks with ptomain poisoning, is reported to be convalescent.

OHIO

New Health Department Laboratory.—The laboratory committee of the Hamilton Board of Health has rented a building for laboratory and headquarter purposes, and has equipped the laboratory at a cost of nearly $1,000.

Personal.—Dr. Jacob A. Kimmell, Findlay, was elected chairman and Dr. Cornelia B. Kennedy, Findlay, secretary, of the Findlay Branch of the Federation of Medical Societies for the Public Health.——Dr. George W. Crile, Cleveland, who has been abroad in connection with the American Ambulance Hospital, Paris, sailed on February 13 for America.

Five-County Hospital Opened.—The Springfield Lake Tuberculosis Sanatorium, jointly established by Summit, Portage, Mahoning, Stark and Columbiana counties, at a cost of nearly $250,000, was opened February 1. The institution has accommodations for seventy-two patients and this can be doubled in case of necessity. Dr. Stanton K. Crawford, Lakewood, has been appointed superintendent of the institution.

Public Health Conference at Columbus.—On January 28 and 29, the forty-first conference of the Ohio State Department of Health, with representatives of local boards of health, was held at Columbus. This conference was for representatives of cities only. The conference was addressed by Governor Willis on the subject of health conservation. Dr. John R. McDowell, Zanesville, spoke of the health department under the commission-manager form of municipal government. The danger of polluting a public water supply by industrial connections was discussed by Mr. L. H. Van Buskirk of the State Department. He mentioned several epi-

demics of typhoid fever as a result of this practice in Ohio. Dr. E. R. Hayhurst, Columbus, gave a summary of the results of the Ohio Survey of Industrial Hygiene and Occupational Diseases, while Dr. E. F. McCampbell, secretary and executive officer of the State Department, discussed the contemplated work of the Ohio Public Health Federation and the public health legislation introduced into the present general assembly.

Columbus Academy Banquet.—On February 1 a complimentary dinner was tendered by the Columbus Academy of Medicine to its members. All members of the general assembly who are physicians were guests. Dr. John H. J. Upham, president of the Ohio State Medical Association, spoke of the need for unity and organization if quackery were to be vanquished and the medical profession maintain its present elevated position. Judge Wanamaker of the supreme court of Ohio addressed the members on the relation of the law to medicine. President Thompson of Ohio State University emphasized the necessity of maintaining high standards of medical education; complimented the American Medical Association on the part it had played in the past, and foresaw that the medical school must set the ideals for the profession in the future or fail in its purpose. Representative Carl D. Hoy, M.D., Columbus, spoke of the necessity of purging the profession of the fee-splitting evil, and mentioned a bill he had recently introduced with that purpose in view.

Proposed Legislation Affecting Public Health.—Among the bills introduced into the general assembly affecting the public health are two very important measures, one, directing the Ohio State Board of Health to manufacture diphtheria antitoxin and distribute it free to indigents in Ohio by means of various distributing stations, and another, to transfer the Bureau of Vital Statistics to the Ohio State Board of Health. This last measure has been approved by Dr. C. V. Chapin, health officer of Providence, R. I., and many eminent statisticians and public health workers throughout the country. The bill for the manufacture and free distribution of antitoxin has been introduced in several previous legislatures, but has always failed of passage. At present there is a working agreement with one of the large antitoxin houses to supply antitoxin to boards of health at reduced prices, but this arrangement is not completely satisfactory.——During this session of the general assembly it is also hoped to effect the passage of a bill transferring the food and drug work of the Agricultural Commission to the laboratories of the Ohio State Board of Health.

PENNSYLVANIA

Personal.—Dr. George W. Guthrie, Wilkes-Barre, who has been ill for the past six months, suffering from pleurisy, is reported convalescent and expects shortly to go to Atlantic City to hasten and complete his recovery.——Dr. W. Knowles Evans, commissioner of health of Chester, is said to be seriously ill with pneumonia.

Mellon Lecture.—Prof. John J. Abel, Johns Hopkins University, will deliver the Mellon lecture under the auspices of the Society for Biological Research of the University of Pittsburgh, at the Mellon Institute for Industrial Research, February 27, on "Experimental and Chemical Studies of the Blood and Their Bearing on Medicine." This lectureship has been endowed by Mr. Richard Beatty Mellon, Pittsburgh.

Philadelphia

Personals.—Dr. F. X. Dercum has been appointed consulting physician of the medical staff of the State Hospital for the Criminal Insane at Fairview, Wayne County.——Prof. C. Wardell Stiles of the Rockefeller Hookworm Commission delivered the ninth Weir Mitchell lecture of the College of Physicians, February 16.

West Philadelphia Stock Yards Closed.—On February 12 the West Philadelphia Stock Yards were placed under complete quarantine by Dr. Charles Schauffler of the United States Bureau of Animal Industry, and a thorough cleansing and disinfecting of the yards ordered. A consignment of cattle recently shipped here was discovered to be infected with foot-and-mouth disease.

Evans Museum to be Dedicated.—The Thomas W. Evans Museum and Dental Institute of the School of Dentistry of the University of Pennsylvania, Philadelphia, will be dedicated and opened for inspection, February 22 and 23. On the first day, the formal dedication exercises will be held with addresses by Dr. Charles Godon, Paris, France; Prof. Dr. Wilhelm Dieck, Berlin, Germany; Mr. John Howard Mummey, M.R.C.S., L.D.S. London, England; Dr. William Simon, Baltimore, and Dr. Edward Kirk, dean of the Evans Museum and Institute; presentation of key by the architect, Mr. John T. Windrim; acceptance on behalf of the Thomas W. Evans Museum and Institute Society by the president, Hon. John Weaver, and on behalf of the trustees of the University, by Dr. Edward F. Smith, provost of the University of Pennsylvania, and the conferring of the degrees by the provost. After the exercises the building will be open for inspection. On the second day the buildings will be open for inspection, exhibits of various subjects in science and education will be shown and sixty-seven clinics will be held to which the alumni and practitioners are cordially invited. The building is one of the largest on the campus and has been erected at a cost of nearly $1,000,000, as the gift of the late Dr. Thomas W. Evans, philanthropist and dentist, who practiced for many years in Paris and died in 1897.

TENNESSEE

Tributes to Surgical Dean.—At a meeting of the Shelby County Medical Association, February 2, eloquent tributes to the memory of the late Dr. William B. Rogers, Memphis, setting forth his excellences as a physician, citizen and a friend, were paid by members of the society.

Fear of Chattanooga Situation Unwarranted.—Dr. Richard H. Creel, San Juan, P. R., surgeon, United States Public Health Service, has reported to Surgeon-General Rupert Blue, Washington, D.C., that a thorough investigation shows no evidence of plague and that the situation as regards small-pox is not alarming. The total number of cases up to the date of the report, January 15, was fifty-six, with sixteen deaths. Dr. Creel reports that vaccination is extensively employed and prohibitive quarantines by neighboring towns are unjustifiable. He says that demand for evidence of successful vaccination in the traveling public from Chattanooga would not be burdensome and would meet all necessary requirements.

Vaccination in Knoxville.—The presence of virulent small-pox at Chattanooga during the fall and winter has prompted the health authorities more rigidly to enforce the vaccination ordinance, and the director of the department of health, Dr. William R. Cochrane, Knoxville, has issued an order requiring all school children in Knoxville, who cannot show a recent scar, to be vaccinated immediately. The director also urges all other persons to avail themselves of the protection afforded by vaccination. Officials of Chattanooga have invited a committee of the Knoxville Board of Commerce to visit the former city, where the small-pox situation is now well in hand. More than fifty thousand vaccinations were made in Chattanooga on account of the epidemic there. No quarantine is contemplated against Chattanooga by Knoxville.

TEXAS

Medical Staff Resigns.—Thirty-six of the forty-two members of the medical staff of St. Paul's Sanitarium, Dallas, resigned recently for reasons which they declined to disclose.

Health Officers Qualify.—Dr. William B. Collins, Lovelady, qualified as state health officer, January 28.——Dr. William A. Davis, Jr., Jourdanton, registrar of vital statistics and secretary of the State Board of Health, qualified on the same day.

Society Seeks Headquarters.—The Bexar County Medical Society has negotiated with the Central Trust Company, San Antonio, for the lease of five or six floors in the Central Trust Company's new building. The plan is to provide an auditorium for meetings, a library, reading rooms, and club rooms, and also to rent space for offices to members of the society.

New State Board Officers.—At a joint session of the old and new state boards of medical examiners held in Waco, February 3, the old board adjourned sine die and the new board perfected organization with the following officers: president, Dr. Thomas J. Crowe, Dallas; vice-president, Dr. Manuel F. Bettencourt, Fort Worth; secretary-treasurer, Dr. Milton P. McElhannon, Belton.

CANADA

National Sanatorium Offices Formally Opened.—On February 10 the lieutenant-governor formally opened the new general offices of the National Sanatorium Association, College Street, Toronto. Toward the erection of this building, Mr. W. J. Gage, Toronto, contributed $100,000. Mr. Gage has also donated $10,000 toward two scholarships in connection

with research work in tuberculosis. Since the first sanatorium was established in Gravenhurst, some sixteen years ago, the deaths in Ontario have decreased from 2,800 annually to a little over 2,000.

Personals.—Dr. James Roberts, medical officer of health, Hamilton, Ont., has been granted leave of absence, to proceed to the front with the Second Stationary Field Hospital as captain. Dr. Major H. Langs will be acting medical officer during Dr. Roberts' absence.——Dr. Howard Burnham, son of Dr. George H. Burnham, Toronto, has been sent in charge of a British Red Cross party to Montenegro. Previous to the commencement of the war Dr. Burnham was a house surgeon at the Toronto General Hospital.——Dr. Hugh A. Stevenson has been elected mayor of London, Ont.——Dr. William J. Charlton, who was recently elected the first mayor of Weston, Ont., has had his election successfully protested by his opponent, Dr. Eli F. Irwin.

University News.—Medical students from the University of Toronto will largely compose the staff of the Clearing Hospital which will accompany the Second Canadian Contingent to France. Between forty and fifty fifth-year medical students will be taken following a request for volunteers. They will be given credit for their year on enlisting. The organization of the unit is in charge of Dr. George S. Rennie, Hamilton, Ont. When it arrives in France it will be in charge of Dr. Wallace A. Scott, Toronto, who went with the first contingent. Accompanying it will be Dr. George S. Strathy and Dr. L. Bruce Robertson, Toronto, and Drs. Foster and James E. Davey, Hamilton.——Dr. H. B. Yates, Montreal, is to be second in command to Dean Herbert S. Birkett of the medical faculty of McGill University of the McGill University General Hospital, which is to go to France. The other officers who are to be appointed to the various ranks are: Drs. John M. Elder, John McCrae, J. George Adami, W. Henry P. Hill, Edward W. Archibald, A. Howard Pirie, L. J. Rhea, William G. Turner, C. P. Howard, Herbert M. Little, William B. Howell, Colin K. Russel, John W. Hutchinson, John C. Meakins, William W. Francis, J. A. MacMillan, R. H. M. Malone, Laurie H. McKim, and Mr. David Law, all of Montreal. Numerous subscriptions for the equipment of this hospital have been received by Dr. Herbert L. Birkett, among others being one from Dr. and Mrs. Casey A. Wood, Chicago.

GENERAL

Coastguard Hospital Ship.—The United States coastguard cutter, *Androscoggin*, returned to port February 1, and reported that during her last month's cruise she had given aid in one case of appendicitis and in one case of serious eye disease.

Lake Water to Be Boiled.—Secretary McAdoo issued an order February 9, prohibiting vessels on the Great Lakes and rivers from serving to their passengers water from the lake or stream over which the vessel is being navigated, unless the purity of the water has been assured. This order is the result of an investigation by the U. S. Public Health Service due to typhoid epidemics resulting from lake travel.

Congress Organized.—The American Congress of Internal Medicine was incorporated at Albany, February 2, with the object of facilitating scientific investigations by physicians interested in internal medicine and for the promotion of good fellowship. The incorporators are Drs. Reynold Webb Wilcox, Heinrich Stern, Louis Faugeres Bishop, D. Morvay Rottenberg and Thomas F. Reilly, all of New York City.

Medical Students in English Universities.—The General Council on Medical Education of Great Britain has issued an announcement showing that the total enrolment of medical students throughout the United Kingdom has been reduced by about 1,000. It is estimated that the number of those added to the profession this year will be from 200 to 300 less than the average, which means a diminution of about 25 per cent. The number of physicians annually removed from the Register for several years past has been about 800, and it is anticipated that additional losses will result from the war. The large reduction in the enrolment in medical schools, therefore, is viewed with grave concern.

More Warnings.—Dr. Walter H. O'Neal, Gettysburg, writes that a young man who goes by the name of M. E. Bergendahl of Hagerstown, Md., has been canvassing the physicians of Gettysburg, soliciting subscriptions for the *Keystone Circulating Magazine* of Philadelphia, and stating that he has endeavoring to secure a scholarship in the University of Maryland Medical School, and that each subscription received entitled him to a certain number of votes. The magazine company says that this man is a fraud and not authorized to receive subscriptions.——The Order of Owls offers a reward of $100 for the arrest and conviction of J. C. Gavil, purporting to be an organizer for the order. This man is said also to go by the name of J. O. Gamble. He has been operating in Arkansas.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Hospital, Philadelphia, a contingent bequest of $28,000, after the death of a brother and sister, by the will of Robert Johnston.

Peter Bent Brigham Hospital, Boston, $50,000; Sheran, Mass., Sanatorium for Consumptives; Childrens Island Sanatorium; Noble Hospital, Westfield, Mass., each $1,000 by the will of Mrs. Ellen R. Goldtwaithe.

Children's Hospital, Boston, $5,000 by the will of James C. Melvin, Carlisle.

Free Hospital for Poor Consumptives, Philadelphia, $7,000 by the will of Thomas McCartney.

Germantown Hospital, Philadelphia, $5,000 by the will of Miss Louise C. Rodney.

St. Joseph's Hospital, Reading, Pa., $5,000 by the will of Elizabeth A. Lippe.

For International Peace.—The Carnegie Endowment for International Peace has issued an appeal signed by the trustees for the formation and expression by the people of a strong public opinion which shall influence the minds of the negotiators who are to settle the terms of peace at the end of the present war and which shall establish a new departure in international relations. It is said that a sufficiently strong public opinion might have for its objective that definite rules of national conduct should be agreed on; that a court of competent jurisdiction be established to judge of national conformity to those rules, and that new sanctions should be provided to compel respect for the judgments rendered. The motive and spirit of the new institutions should be the safeguarding of human rights and the perfection of individual liberty.

WAR NOTES

Tetanus Antitoxin for Europe.—At a lecture before the New York Academy of Medicine, February 4, Dr. Matthias Nicoll, Jr., announced that New York City is sending 2,000,000 units of tetanus antitoxin each month to the warring nations in Europe.

French Surgeons at the Front.—In an address before the Paris Surgical Society recently, Professor Tuffier said that of the 14,000 surgeons in the army, 6,500 were at the front. Of these 93 had been killed, 260 wounded and 441 missing; 135 had been mentioned in orders for gallant conduct on the battlefield.

Personal.—The Red Cross badge of honor, second class, has been conferred on Dr. McDonald, chief surgeon of the American Red Cross Hospital unit, Budapest, and on Surgeons Jewett and Miller of the staff of the hospital.——Drs. Ethan F. Butler and Ernest P. Magruder, both of Washington, of the Servian Red Cross unit, have converted a tobacco factory at Gevgalia into a hospital with a capacity of 1,400 beds.

Relief Funds for Belgian Physicians.—In Italy the National Association of public health officials (*medici condotti*) appropriated $700 to start a fund for Belgian physicians, and other medical organizations have contributed, the Consiglio Federale degli Ordini der Medici giving $200 and the Rome ordini giving $100, and public meetings were held at Naples and elsewhere in December to solicit private subscriptions.——In the Netherlands, relief funds were started early in December, and the *Nederlandsch Tijdschrift* has been publishing regularly since the lists of subscribers.——Our Denmark exchanges also record the donations to the relief fund started in Copenhagen.

Aid for Belgian Physicians.—Dr. Frank F. Simpson, Pittsburgh, treasurer of the committee of American physicians for the aid of the Belgian profession, calls attention in his weekly report to the devastation existent in that country:

"A recent visitor to Belgium says of the desolation there:

'No one who has not been to Belgium within the last five months can picture, can even dimly conceive that country's desolation.

'Wherever our ambulance cars went they met endless processions of refugees: endless, for the straight, flat Flemish roads are endless, and as far as your eye could see the stream of people was unbroken: endless, because the misery of Belgium is endless: the mind cannot grasp it or take it in.

'It was not flight: it was the vast, unending movement of a people crushed down by grief and weariness, pushed on by its own weight, by the ceaseless impact of its ruin.

'I saw six thousand refugees sleeping on straw in the Palais des Fêtes, packed so tight on the floor of the immense hall that there was no standing room between any two of them.

'You could not believe what you saw: you were stunned as if you yourself had been crushed and numbed in the same catastrophe.'

"An American gentleman," says Dr. Simpson, "who saw the food and clothing put into the hold of the steamship *Ynorta*, which took supplies, for the state of Virginia, to the Belgians, crossed the Atlantic on the ship and went into Belgium to watch the distribution of the articles among the people. He has returned and declares: First, that every pound of flour and every article of clothing sent from America by the relief commission is received by a Belgian; and second, that all who get such gifts are in direst need of them. Hunger seems to have broken down all class distinctions in Belgium.

"Captain Green of the steamship *Batiscan*, which sailed with food from Philadelphia on December 6, says that the suffering among the Belgian people cannot be exaggerated.

"Linden W. Bates, manager of the commission for relief in Belgium, states that within a few months the bread lines in Belgium will be 2,500 miles long, which would reach from New York to Salt Lake City.

"Physicians and their families have shared the common fate. Appeals for food, drugs and clothing are numerous and urgent. The resources of your committee have been so limited that we have not felt justified in sending anything but food to our starving colleagues. One hundred and fifty-six physicians and eleven medical societies have thus far contributed to this fund. There are approximately 142,300 physicians in the United States. If each one would contribute even a small sum, it would be possible to supply the necessary food, drugs and clothing. Do not hesitate because your check is not as large as you would like it to be. Contributions of any amount will be welcome.

"Every cent you give will be economically spent for supplies for Belgian physicians and their families. There are no charges for shipping and distribution.

"Not a cent has been spent for stenographer, stationery, stamps, etc."

For the week ending Feb. 13, 1915, the treasurer has received the following contributions:

Dr. Oswald O. Cooper, Hinton, W. Va.	$ 10.00
Dr. Franklin A. Dodge, Le Sueur, Minn.	10.00
Dr. Alfred A. Herzfeld, New York, N. Y.	10.00
Dr. Arthur W. Sieker, Plymouth, Wis.	5.00
Dr. Charles H. Cargile, Bentonville, Ark.	10.00
Dr. Albert A. Bornscheuer, Pittsburgh, Pa.	2.00
Dr. Lyn Waller Deichler, Philadelphia, Pa.	5.00
Dr. Henry T. Goodwin, New York City	5.00
Dr. Henry S. Weigle, Muncy, Pa.	5.00
Dr. James J. Keyes, Bronx, N. Y.	5.00
Dr. James I. Johnston, Pittsburgh, Pa.	15.00
Dr. Frederick J. Resseguie, Saratoga Springs, N. Y.	10.00
Dr. Frank H. Jackson, Houlton, Me.	5.00
Dr. Herbert L. Frost, Cleveland, O.	10.00
Dr. Philip St. L. Moncure, Norfolk, Va.	5.00
Dr. Alex. J. Braden, Duluth, Minn.	5.00
Dr. Wendell C. Phillips, New York, N. Y.	75.00
Dr. Russell S. Fowler, Brooklyn, N. Y.	25.00
Dr. John W. Farlow, Boston, Mass.	25.00
Dr. Edwin W. Link, Palestine, Tex.	10.00
Dr. Henry R. Link, Palestine, Tex.	5.00
Dr. Harold Gifford, Omaha, Nebr.	100.00
Jefferson Co. Med. Society, Birmingham, Ala.	50.00
Dr. Edgar R. McGuire, Buffalo, N. Y.	10.00
Dr. Max Einhorn, New York, N. Y.	25.00
Dr. Joseph L. Miller, Thomas, W. Va.	10.00
Dr. David Chester Brown, Danbury, Conn.	10.00
Oshkosh Medical Club, Oshkosh, Wis.	50.00
Dr. George M. Dill, Prescott, Wis.	1.00
Camden Co. Medical Society, Camden, N. J.	50.00
Dr. Joseph P. Walsh, Philadelphia, Pa.	10.00
Dr. Lawrence B. Pilsbury, Lincoln, Nebr.	5.00
Dr. Edward E. Montgomery, Philadelphia, Pa.	25.00
Dr. Joseph T. Clegg, Siloam Springs, Ark.	1.00
Dr. Kenneth B. Huffman, Bentonville, Ark.	1.00
Receipts for week ending Feb. 13	$ 605.00
Previously reported receipts	2,528.00
Total receipts	$3,133.00
Previously reported disbursements	$2,530.00
Disbursements week ending Feb. 13, 275 boxes of food at $2.20 per box	605.00
Total disbursements	$3,135.00
Deficit	$2.00

FRANK F. SIMPSON, M.D., Treasurer,
5 Jenkins Arcade Bldg., Pittsburgh, Pa.

Appreciates American Red Cross Work.—The French foreign office has advised the American Red Cross that the minister of war "appreciating the generous and valuable services of the American Red Cross units at Pau" is desirous of sending at least one of these units either to Dunkirk or some other place in the north or east of France where normally a considerable number of badly wounded soldiers are received. It has been ascertained that the two hospital corps units at Pau have many serious cases and the American Red Cross has therefore offered an additional hospital unit for services at Dunkirk or such other place as the French authorities may designate.

FOREIGN

Berlin Prize Goes to Toldt.—The Virchow prize plaque has been awarded by the Berlin Anthropological Society to Prof. K. von Toldt of Vienna, president of the Vienna Anthropological Society.

Medal for Coenen.—The king of Greece has sent to Prof. H. Coenen of Breslau two souvenir medals inscribed with words of gratitude for the services he rendered in the care of the wounded during the recent Greek-Turk and Greek-Bulgarian campaigns. An autographed photograph of the king accompanied the medals.

Pediatrist Appointed Member of Spanish Cabinet.—Dr. G. Alvarez, a well-known pediatrist of Madrid, has recently been appointed a member of the Cuerpo medico of the Real Camara of Spain. This call on the specialist skill of one versed in the diseases and hygiene of children is hailed by the medical and lay press as of promising augury.

The Swedish Medical Association.—This important association has ten memorial endowment funds for charity, three funds for purchasing books and for social purposes, and ten for prizes or appropriations for research work. The Regnell prize for 1914 was awarded to Prof. I. Bang of Lund for his monograph on the residual nitrogen of the blood. The jubilee prize was given to Prof. U. Quensel of the University of Uppsala for his comprehensive and important work, "The Alcohol Question from the Medical Standpoint." The recipient of the Alvarenga prize was Prof. P. Haglund for his study of scoliosis (reviewed in our Foreign Current Literature Department, February 20). The prizes, etc., are open only to Swedish physicians. The Svenska Läkaresällskapet publishes three periodicals: the monthly transactions or *Förhandlingar;* the large and handsome archives or *Handlingar*, and *Hygiea*, a fortnightly general medical periodical. The two latter are indexed and reviewed regularly in our Foreign Current Literature Department.

Deaths in the Profession Abroad.—A. Mermod, professor of ear and throat diseases at the University of Lausanne, aged 62.——L. Guaita, one of the leading ophthalmologists of Italy, professor of this chair at Florence, Italy, died December 30, aged 63. He founded the eye clinics at Bergamo and Siena and reorganized the one at Florence. He published sixty articles or books on various subjects in ophthalmology, and has lately been at work on a large atlas of the eye.——O. K. Sprengel, surgeon-in-chief of the public hospital at Braunschweig and president of the German Surgical Association, succumbed to septic infection, professionally acquired, aged 62. His works on high shoulder, traumatic coxa vara and the laparotomy incision, etc., are well known.——The cable brings word of the death from typhus of Surgeon-General Philip Pack, chief of the medical service in the Austrian army. He contracted the disease during a trip of inspection to the camps of Russian prisoners.——Dr. Moliner of Valencia, Spain, a leading spirit in the organization of the profession, in the campaign against tuberculosis and in the efforts for progress in hygiene and in public health in general. The *Siglo Medico*, which brings the notice of his sudden death, contains also, by a strange coincidence, his last written words—a ringing appeal from him to the profession at large on the necessity and advantages of closer organization of the profession throughout the country.

The Earthquake in Italy.—The *Policlinico* states that large numbers of physicians were among the victims of the earthquake, and those who survived were unable to render proper service because all dressings and drugs were buried under the ruins. Dr. De Sanctis of San Benedetto dug for a whole day in the ruins of what had been the local drug store trying to unearth some dressing material and bichlorid. The physicians connected with the state railroads were the first to bring help to the stricken province, the chief of the service despatching relief trains with dressing materials and drugs from all the larger cities outside of the devastated zone. A well-equipped hospital train with operating room was sent from Rome, and relief trains were soon on their way from Naples, Turin, Milan and Ancona. When the wounded in towns along the railway had been tended, the physicians

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struck out into the country, finding more victims the farther they walked. The military medical officials were soon on the spot also, and the unharmed local physicians were provided with ample supplies. The traumatic injuries, especially those of the head, were usually found covered with plaster dust, which it was a difficult and tedious matter to clear out. There was not enough antitetanus serum on hand to give all the injured a preventive injection, but hydrogen dioxid and tincture of iodin were used in abundance. The injuries were mostly compound comminuted fractures of the legs, fracture of the clavicle and extensive wounds of the scalp. Those who were dug out of the ruins after having been thus buried for several days were often found suffering from shock, and numbers of them died within a week. In many cases morphin proved remarkably effectual, better than stimulants.

PARIS LETTER

PARIS, Jan. 28, 1915.

The War

NUMBER OF MILITARY PHYSICIANS KILLED, WOUNDED AND SICK

At the opening of the formal session of the Société de chirurgie, January 20, Dr. Tuffier, agrégé at the Faculté de médecine de Paris and surgeon of the hospitals, gave statistics concerning the members of the medical profession serving with the army who have been killed or incapacitated. At the end of December, of our 14,000 military physicians, 6,500 were with the armies, 793 were killed, wounded or missing (90 killed, 80 on the battlefield, and 13 dead of wounds; 260 wounded and 440 missing) and 507 were sick. Altogether, 1,300 were killed, missing or incapacitated. The courage and devotion of the medical profession has been recognized by 155 mentions in the order of the day of the army, 15 nominations of officers of the Legion of Honor and 63 nominations of chevalier of the same order. Eleven auxiliary physicians and pupils of the army health service have received a still higher token of the esteem of their chiefs, the military medal.

A MILITARY PHYSICIAN WITH NINETY-SEVEN WOUNDS

Dr. Dercle, a military surgeon who has just received the cross of a chevalier of the Legion of Honor, holds the record for the number of wounds. He bears the marks of ninety-seven. He abandoned his post only when he fell, having received three serious wounds. At present, he is undergoing his convalescence at the military hospital of Val-de-Grâce, where he received the medal awarded to him by the government for his courage and devotion.

HOSPITALITY FOR RELATIVES OF WOUNDED SOLDIERS

Under the presidency of Mme. Pierre Bonnier, M.D., there has just been founded an Oeuvre d' hospitalité aux parents des blessés et malades militaires, intended to facilitate the sojourn in Paris of provincial families whose members have come to Paris to visit wounded relatives who are being cared for in the hospitals of the Assistance publique. Members of the wounded soldiers' families are to receive, through the hospitals, a notice of the organization with a list of the hotels which belong to it. Armed with this notice, the visitors can, on their arrival at the station, claim the help of the agents of the organization, each of whom wears a knot of red and yellow ribbon on the shoulder and who will furnish them with directions and, if necessary, take them to the chosen hotel. These hotels are near the hospitals and offer a reduction of from 40 to 50 per cent. on their rooms to relatives of wounded soldiers. For any person who is in want, a room will be reserved free of charge for two days. At each hotel, and at the corresponding hospital, is a delegate of the organization who will place himself at the disposal of the patient's family during the stay of the visitors in Paris, and after their departure will act as an intermediary between the family and the patient.

TREATMENT OF WOUNDS OF WAR BY VERY DILUTE ANTISEPTIC SOLUTIONS

At one of the last sessions of the Académie des sciences, Dr. J. Danysz of the Pasteur Institute read a report on researches which he has made, drawing his inspiration from theories put forward by Dr. Roux, director of the institute. These investigations tend to show that for certain antiseptics there are dilutions which, though germicidal, are yet stimulating for the growth and reconstruction of the injured tissues. These two actions are found best associated in very dilute solutions of silver nitrate. In numerous cases this method has been used in the last two months in some of the hospitals of Paris and in some Red Cross ambulances; in all cases disinfection has been observed together with a more rapid cicatrization than with the other chemical means hitherto employed although the solutions used were extremely dilute—from 1:200,000 to 1:500,000.

A New Method of Rapid Bacteriologic Diagnosis of Typhoid Fever

This procedure, which permits the rapid diagnosis of typhoid fever and the detection of bacillus-carriers, was reported to the Académie des sciences by Dr. P. Carnot, agrégé professor at the Faculté de médecine de Paris and Dr. B. Weill-Hallé, physician of the hospitals of Paris. A U tube with a constriction in the horizontal portion is used. A layer of sterilized sand is introduced into the tube and two arms are filled with a sterile bouillon. One of the arms of the tube is inoculated with the suspected stools and the tube is incubated at 37 C. Under these conditions the germs introduced with the stools develop, but the typhoid bacilli, being much more motile than the other intestinal microorganisms, traverse the layer of sand and multiply in the second arm of the U tube in which no infected matter has been placed. The character of the bacilli is verified by the agglutination test. The method is very sensitive and allows a precise result to be obtained within a few hours.

LONDON LETTER

LONDON, Jan. 29, 1915.

The War

THE SANITARY CONDITIONS OF THE BRITISH TROOPS: COMPARATIVE ABSENCE OF TYPHOID FEVER

While presiding at one of the Chadwick Lectures on "War and Disease" by Dr. F. M. Sandwith, Sir Frederick Treves made the statement that our sanitary arrangements in the present war were unprecedented. He says this having in view both the British war in South Africa and the Russo-Japanese War, of both of which he had experience. As a member of the Army Sanitary Committee at the War Office he could speak with assurance on the point. When the history of this war came to be written and read, one of the most astounding and magnificent features in it would be found to be the sanitary precautions that had been taken, and the sanitary measures that had been carried out, to secure the health of our soldiers, and their care in time of disease. But although typhoid might be rendered immensely less by proper education of the soldier, by the care and knowledge of the medical men, and by sanitary arrangements, it could not by these measures be eradicated. A further precaution was needed—inoculation. In South Africa and in the Russo-Japanese War, he was struck by the difference between the soldier who was informed and the soldier who was ignorant. Our men were not informed, and on going up to Ladysmith he confessed it was a dreadful sight to see men drinking water he knew to be polluted. Education had improved matters since then. Sanitary conditions that held good in South Africa were fair for the time; many things were then quite new and many under trial. The following are the latest figures showing the value of inoculation: Since the beginning of the war there have been only 421 cases of typhoid fever among the British troops; 305 were in men who were not inoculated. There have been 35 deaths. Of these deaths, 34 were men who had not been inoculated within two years. Only 1 death occurred among patients who were inoculated, and that man had been inoculated only once. When the nature of the country in which the British troops are operating is borne in mind, the efficiency of the sanitary arrangements will be all the more apparent. The small remaining part of Belgium held by the Allies has been inundated to prevent the advance of the Germans, and in consequence of the rains, the trenches in which the men stand for many hours hold water which extends up to the ankles and even higher.

THE GERMAN PRISONERS IN ENGLAND

The manner in which the German prisoners are cared for in England is shown by the following report by Dr. Athelstane Nobbs, president of the Wandsworth Division of the British Medical Association, who is in medical charge of a ship, used in time of peace for emigrant purposes, now converted into a floating prison: The dietary consists of 1½ pounds of bread, ½ pound of meat, 2 ounces of butter or margarin, ½ pound of potatoes, ½ pound of green vegetables, with tea, milk and gruel. Evening gruel has lately been added, but is not much appreciated. As to bread, there is considerable difficulty in pleasing the prisoners. They clamored for black bread, which they urged was more nourishing than white. Rye was not easy to obtain, but it was eventually obtained,

and it was hoped that all would go smoothly. But apparently English ovens do not lend themselves to the baking of rye bread. Some of the prisoners, who in private life had been bakers, were employed, but to no purpose. After much experimenting the happy medium seems to have been found by making dough composed of 2 parts of whole meal, 1 part of wheat flour, and 1 of rye. This mixture rises fairly well, and is best when of the previous day's baking. There were at first loud clamors for the sausage of the Fatherland which, being unobtainable, is not likely to appear in the menu. In the cookhouse prisoners were at first made trial of, but the inevitable happened. Just as the bakery failed even with German bakers to superintend or advise, so did the cookery prove a slip. Within twenty-four hours of the venture there was an outcry to return to English methods, and it has remained at that ever since. With the exception of the quarters allotted to the guard, the officers and navigators, the prisoners have the run of the whole deck, or rather decks. They have the fair winds of heaven with which to fill their lungs, and hot saltwater baths in moderation. They have never-ending post which brings them parcels—everything except alcohol and shore leave.

Another illustration is furnished by the camp at Stratford, where more than 200 Austrians and Germans are interned. The prisoners are permitted to deck the interior of the buildings with the German and Austrian national colors, to wear a souvenir badge, and to erect a stage at which an elaborate musical and dramatic entertainment was given in honor of the kaiser on his birthday. The title of a one-act musical comedy, "The Jolly Prisoners," is significant. The events were closed by "Die Wacht am Rhein."

ARRIVAL OF JAPANESE RED CROSS CONTINGENT

A Red Cross contingent consisting of two surgeons, a secretary, two chief nurses, twenty nurses and an interpreter have arrived at London in response to the acceptance by the War Office from the Japanese Red Cross. The head of the party is Dr. Suzeki, who served before Port Arthur in the Russo-Japanese War. Dr. Oshima, another member, is a graduate of the Imperial University of Japan, and was actually studying medicine in Germany when war was declared. He managed to escape to London, and went on to Japan, which he left again with his present colleagues. Mr. N. Otsuka was professor at the Disciples' Bible College, Tokyo, and most of the party, including the nurses, have left their civil occupations, and in several cases their husbands or wives. The nurses belong to the Red Cross League of Japan, which, founded about thirty years ago, binds its members, wherever they are, in case of emergency to respond to any call that may be made on them, and to go wherever they may be sent during the period of three years' training and fifteen years' service in the reserve.

SCARCITY OF LEECHES AS A RESULT OF THE WAR

Though leeches are not used in medicine to anything like the extent of former years, serious scarcity has arisen since the war, as the armies are now fighting in some of the best leech areas of Europe.

Traumatic Neurasthenia Without Physical Injury

It has been shown in previous letters that the workmen's compensation act is so comprehensively drawn up that workmen are entitled to compensation for injury under practically any conditions. The following case, which came before the Court of Appeal, shows that physical violence is not necessary for "injury" in the meaning of the act. A collier went to the assistance of a fellow workman who, having been badly injured, was bleeding from the head, face, ears and eyes. He picked him up and carried him away, and the injured man died a few minutes later. The allegation made was that the plaintiff had received a nervous shock which incapacitated him from work and that he therefore suffered from an accident arising in course of his employment. The court decided that the condition was, in fact, the result of an accident while at work. The presiding judge held that the nervous shock produced physiologic injury, and was the result of an accident "arising out of and in course of the employment" (the words of the act).

BERLIN LETTER

BERLIN, Jan. 19, 1915.

The War

AWARD OF THE IRON CROSS

The decoration of the Iron Cross of the first class has been bestowed on Professor von Drigalski of Halle, Surgeon-General Schumburg of Hanover, brother-in-law of von Behring, and Privat-Docent Stier of Berlin. In the case of the last named, the decoration was in recognition of the rescue of the wounded when our troops were surrounded and afterward broke through the Russian armies at Lodz late in November.

ORGANIZATION OF MEDICAL SERVICE

With the complete separation of the leadership in our western and eastern theaters of war, the medical affairs of the army in the east have been placed under a special chief in the person of Surgeon-General Kern, also well known as a philosopher. In this way the medical service of the eastern army is completely independent of the surgeon-general of the army, von Schjerning.

A HEALTH SERVICE FOR BELGIUM

A German management of medical affairs of the parts of Belgium now occupied by the Germans has been established under the supervision of Surgeon-General Stechow. Garrison physicians are employed in Antwerp, Brussels, Liége and Namur who, partly assisted by Belgian officers and physicians, have organized a public health service. In the province of Namur a compulsory notification of infectious diseases which was not previously enforced has been introduced by Professor Schilling, who is serving as garrison physician and who was formerly for many years a member of the Robert Koch Institute for Infectious Diseases. The bacteriologic institute which existed in Namur has been adopted as a hygienic examination office for diagnosis. This institution heretofore was available only for private examination to the Belgian physicians. Furthermore, the establishment of sewerage which was formerly limited, has been begun. A health commission has been appointed in which German and Belgian physicians, under the presidency of the garrison physicians, consult together on matters of public health. Most Belgian hospitals which were originally monasteries had to be brought to the standard of modern hospital requirements. Sanitary closets were established, electric light introduced and Roentgen cabinets, dental departments, permanent baths and medicomechanical apparatus, etc., provided. Moreover, in some places, isolation for infectious diseases had to be provided. Typhoid patients are, as far as possible, collected at Spa. There is in Belgium an enormous prevalence of venereal diseases. This has occasioned a not inconsiderable inconvenience for our soldiers. For this reason, special attention has been devoted to a methodical campaign against this plague. In the city of Chauny, the brothel has been closed since the beginning of the war, but a similar business was established in two houses of the city, which naturally produced a nuisance, as the conveyance of infection was thereby promoted. For this reason these two houses were closed and the sick prostitutes found there and other women affected with venereal diseases were confined in another house and treated. As soon as an infection is found in a soldier, the source of infection is carefully determined and the woman from whom the infection has arisen is permanently confined. The soldiers are expressly notified of the dangers of sexual intercourse with especial reference to the circular of the German society for combating sexual diseases, and continence is recommended.

NERVOUS AND MENTAL DISEASE

The Berlin psychiatrist, Albert Moll, recently reported at an evening meeting for the consideration of military medical affairs on the results of a tour for psychiatric study through the western theater of war, the hospitals of Northern France and Belgium. Altogether relatively few insane were found, while nervous disturbances appeared somewhat more frequently. Cases of imbecility were only rarely observed. The

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reason for this is, first, the better education in psychiatry of military surgeons, who immediately reject such patients, and second, the fact that the registers of the subsidiary schools for feeble-minded and those of the insane asylums have been made accessible to the recruiting boards. A few cases of primary alcoholic insanity have been received in the special wards of the hospitals. Moll saw during his trip only two drunken soldiers. He holds the provision that complete abstinence be not required during the campaign to be fully justified, but regards it as desirable that presents of alcohol to the soldiers should be distributed by their superiors. In view of the sanitary conditions in France and Belgium and of the composition of the water that is available, the addition of wine to the water is required. In Liége, where a nervous department has been established in the hospital, only nineteen patients had been admitted up to the middle of November. Among these were three epileptics, three cases of anxiety neurosis and six of alcohol psychosis. This is a small number considering the large number of soldiers who are stationed in that neighborhood or pass through it. In Brussels, 120 patients were treated in the department, of whom, however, a great number were affected with organic nervous diseases, such as shot wounds of the nerves or cases of apoplexy, and also five cases of primary alcoholic insanity, thirteen of paralysis, seventeen of epilepsy and seventeen of hysteria. In a large army hospital in the neighborhood of Argonne that received a very large number of soldiers, only ten or twelve cases of insanity were observed by a psychiatrist who had seen all the patients. Cases of exhaustion psychosis have been observed, as they were in the Russo-Japanese War. Moll, however, would include these with hysteria rather than genuine insanity. Diagnosis is difficult in the field where any sort of history is lacking, and also it is difficult to decide where the treatment of cases of insanity can best be carried on. Transportation home is best secured in separate departments of the hospital train which are provided with specially trained nurses.

FROM SIR WILLIAM OSLER

OXFORD, Feb. 3, 1915.

Medical Notes on England at War

FROST-BITES AND COLD-BITES

The outstanding feature of the recent admissions to the hospitals from the front has been frost-bite, a very unusual condition in British practice. The cold has been severe in Northwest France and Belgium; the men have had long exposures in the trenches, from the effects of which thousands are suffering with sore feet. To wear boots and stockings continually for a week or ten days soaked in cold mud or water and mud, passing long hours in the upright position, naturally causes vasomotor paresis with swelling, and the prolonged stasis has led in not a few cases to necrosis. The cases varied extremely. In the first place there may be nothing more than aggravated chilblain, with the stages of protracted venous stasis, edema, bullae and superficial necrosis. A lad at the Canadian Hospital, Beechborough Park, had slight tenderness of his feet which had only been swollen and blue, but over the backs of both hands and knuckles were areas of superficial necrosis. He had been in the trenches for days, his hands had been swollen, particularly the backs, and he was completely incapacitated.

Secondly, there have been cases of genuine frost-bite; the temperature was protractedly low, and widespread necrosis followed; but several men with necrosis of the toes assured me that the water in which they had stood had not been frozen. In the sequel of events no doubt all of these lacked the preliminary complete anemia of ordinary frost-bite. Gangrene never follows this stage directly, but the succeeding condition of stasis in veins and capillaries. A very common form has been great swelling, with lividity, blackness of the toes, with a slight necrosis of the superficial skin of the pads, or shedding of the nails. As in Raynaud's disease, the final condition is often very much better than one could have anticipated from the appearance of the feet at first. A man at Paignton had a curious distribution of the necrosis, confined to the sole of one foot.

Thirdly, with these conditions, with which all are familiar, there have been an unusually large number of cases to which the term "cold-bite" is more applicable. The men return with swollen feet, vasomotor paresis, not necessarily with much pain but with disability due more to the swelling, and sometimes to the great stiffness of the toes. The desquamation of the skin and hemorrhages beneath the nails indicated that this was a sequel of much more serious condition. More unusual cases have been without any obvious change, the feet looking normal but with an extreme degree of cutaneous hyperesthesia, so that the slightest touch caused wincing and the feet had to be constantly protected with a cradle. Sometimes the pain was spontaneous, or it would come on at night; but in many instances it was brought out only on attempting to stand, or when the patient was touched, or the foot moved. In several cases it was a "stocking" hyperesthesia reaching just above the ankle. One patient in the convalescent home at Blenheim Palace had evidently suffered intensely, and was badly knocked out in his nervous system. Others have shown marked neurasthenic or even hysteric manifestations. The truth is, the trenches have been a veritable hell, and it is not surprising that a good many of the men show signs of severe nervous shock.

THE LOW MORTALITY AMONG THE WOUNDED

It is intensely interesting to see a set of severe cases some weeks after their admission. Extraordinary results follow even in the severest type of cases. At the American Hospital, patients whom I never expected to see alive were up and about and doing remarkably at the end of a month. A man with the surface of the trochanters bare and the lower end of his thigh infected severely had the wound cleaned, and a nice amputation made, with a good stump. A man with a part of the sacrum blown away and the rectum exposed from behind had gained 10 or 12 pounds in weight, the wound was healing rapidly and the fecal fistula had healed. One is immensely impressed with the good results of treatment and the very low rate of mortality. At the Base Hospital here, among more than 3,000 cases there have been about a dozen deaths. At the Cambridge Hospital among the first 3,500 patients admitted only fifteen died—a mortality of 0.4 per cent. At the American Hospital, Paignton, there has been only one death among 700 patients—a mortality of 0.14 per cent. It has been very satisfactory to note the absence of tetanus in the recent admissions and that cases of gas gangrene have been fewer.

AN ANEURYSM CASE

I mentioned in my first letter the case of a Belgian at the Beechborough Canadian Hospital in whom the bullet passed through the mouth under the jaw, beneath the skin of the neck, and lodged below the left clavicle; the cervical triangle was filled with a pulsating mass. When first seen it looked like an ordinary traumatic aneurysm, and I felt sure that an artery must have been wounded; but after Dr. Armour had removed the bullet and relieved the tension, the pulsation ceased, and the second time I saw the patient there was nothing but the firm indurated swelling above the clavicle with disability of the arm from pressure on the nerves. Then he began to bleed freely from the throat and from the wound, and it was quite evident that an artery had been opened. Dr. Armour operated and found that the bullet had nicked the subclavian artery, which he tied successfully, and the man has made a complete recovery.

CEREBROSPINAL FEVER

Medically, the most disturbing incident has been the outbreak in various camps of cerebrospinal fever, a rare disease in this country. There had not been a very bad epidemic during the nineteenth century, but in 1905-1906, Belfast and Glasgow suffered severely, and there has been an increase in the sporadic cases during the past three years. The first Canadian contingent apparently brought the disease with

them, as there were four cases at Valcartier and three cases on the voyage. There was no additional case until recently, and they have had in all about twenty-five or twenty-six, with eleven or twelve deaths. I went last week to the camp at Salisbury to see the cases. The weather has been appalling, much wind and more rain, and everywhere the mud has been ankle-deep. At the General Hospital, Netheravon, under the care of Dr. Murray Maclaren of St. John and Dr. F. G. Finley of Montreal, there were many cases of bronchitis, bronchopneumonia and rheumatism. Most of the men, however, looked very fit and seemed to have stood the hardships very well. A new hospital had just been opened for the cerebrospinal fever cases, of which there were eleven under treatment. I found a well-equipped laboratory and a full staff of workers under Dr. Arkwright of the Lister Institute, who has done much work on the meningococcus. Dr. Ellis, who has been at the Rockefeller Hospital, New York, for the past four years and who is an expert in all methods of intrathecal treatment, was in charge of the clinical work. They had only just begun a systematic investigation of the contacts, and when I left they had not detected any carrier. It is not likely that the epidemic will prove serious. It is alarming, though, as there is another infected camp not far away in the English troops, and in the city of Salisbury itself there have been ten cases and seven deaths. I was afraid at first that the Canadians were responsible for bringing the infection, but it is evident that, as is usually the case, sporadic outbreaks are occurring in different parts. There have been a few cases at Haslar; I saw two cases at the Millbank Hospital, both from the Eastern counties, and on the thirtieth I visited the Shorncliffe Camp, where they have had eight deaths, and a few cases remained in hospital. It is interesting that this is the only place during the nineteenth century that the disease appeared among soldiers.

TYPHOID FEVER

There is extraordinarily little typhoid fever among the recruits or in the patients in the hospitals from the front. Sir Frederick Treves in the *Times* of to-day gives the returns of the British troops in the present campaign—421 cases, 305 in men who were not inoculated. In the 421 cases there have been thirty-five deaths; of these thirty-four were men who had not been inoculated within two years; only one death occurred among patients who were inoculated and that man had been inoculated only once. The "Anti's" are causing a great deal of trouble in distributing their pernicious literature among the soldiers. It is a thousand pities the government does not take its courage into both hands and order compulsory inoculation. It is evidently going to be a "long, long way to Tipperary" in this war, and should typhoid fever within the next eighteen months play the same rôle as it did in the South African War, the bacillus of Eberth might very well be one of the determining factors in deciding on which side victory will fall.

Everywhere preparations are in progress for the spring and summer campaign. New hospitals are being built to meet the heavy demand when, for the first time in its history, this country will have more than 1,500,000 in the fighting line. We have had orders for another 500 beds in Oxford, which will be arranged for in barracks in the Radcliffe Observatory Field close to the Radcliffe Infirmary. Waldorf Astor, Jr., has given his beautiful place at Clevedon on the Thames as a Canadian Base Hospital, and between the house and the barracks erected on the grounds there will be 500 beds.

DEATH OF PROFESSOR VAN GEHUCHTEN

A tragic event, of which you have already heard, was the death of Professor Van Gehuchten. He had settled very happily at Cambridge working at the Research Laboratory with Dr. Strangeways, and we were so glad to be able to put him on the Rockefeller list. He died suddenly after an operation for volvulus. How the poor fellow and his family suffered at the Louvain tragedy is told in the *British Medical Journal*, January 16.

WILLIAM OSLER.

Association News

THE SAN FRANCISCO SESSION

Announcement by the Subcommittee on Hotels Regarding Reservations in Advance

The local Committee on Arrangements for the San Francisco session requests those who contemplate attending to secure their accommodations as early as possible. The committee has full assurance that those who attend can depend on the rates hereinafter quoted. The subcommittee on hotels is being assisted by the official hotel bureau, established by the exposition management, together with a committee of hotel men representing the hotel interests of San Francisco and vicinity. The purpose of this bureau is to afford protection to exposition visitors (which of course includes those attending the meeting of the American Medical Association) against increased or unreasonable hotel rates, and to provide an official bureau through which intending visitors to San Francisco in 1915 may secure hotel reservations at desirable rates, either in advance or on arrival. No hotel is admitted to registration in the bureau until it has filed its rates in full, and until these rates have been passed on by an unprejudiced committee as reasonable for location and service given. Hotels registering with the bureau guarantee that the rates quoted will not be directly or indirectly increased during 1915. The subcommittee on hotels, cooperating with this bureau, will undertake to secure reservations for all those addressing communications to it.

All hotels in San Francisco, with a few exceptions in the residence district, are less than eight years old and are modern in all respects, so that no one need fear that in engaging accommodations at the lower priced hotels, he will not find clean and modern quarters. The local subcommittee on hotels desires to avoid having too many rooms engaged for one person, and advises that in each of the hotels there is a limited number of single rooms and that in certain other hotels the same price will be charged whether the room be occupied by one or two persons. Where but one rate is quoted, it is the minimum rate. The minimum rate quoted for two persons in one room is for a room with a double bed. Twin beds call for a slightly higher tariff. Blocks of rooms have been engaged at all the leading hotels dating from June 19, the Saturday before the meeting, and these will be apportioned in order of application—first come, first served.

In submitting the present list of hotels, the subcommittee on hotels advises that a longer list will be announced later, as the Hotel Bureau has not yet all the data compiled, and it is expected that the register of the bureau will include several hundred hotels.

The local Committee on Arrangements requests that those desiring to reserve accommodations shall use the form appended to the list of hotels which appears on advertising page 21 of this issue, and mail their request to the official Hotel Bureau at 702 Market Street, San Francisco. On receipt of this request, the accommodations asked for, or those as nearly like the accommodations requested as it is possible to secure, will be reserved. The subcommittee on hotels urges Fellows to make these reservations through the subcommittee on hotels, or the official Hotel Bureau.

F. B. CARPENTER, Chairman, Subcommittee on Hotels.

The hotels listed below have already been assigned as headquarters:

General Headquarters	Palace
Medicine	Palace
Surgery, General and Abdominal	St. Francis
Pathology and Physiology	Bellevue
Stomatology	Plaza
Dermatology	Granada
Preventive Medicine and Public Health	Clift
Genito-Urinary	Manx
Hospitals	Inside Inn
Orthopedic Surgery	Stewart

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Marriages

FRANK RIEGEL WENTZ, M.D., Allentown, Pa., to Miss Kathryn M. Shoemaker of Chestnut Hill, Philadelphia, February 20.

FRANCIS WILLIAM DOYLE, M.D., South Deerfield, Mass., to Miss Marie Josephine McCormick of Waltham, Mass., February 3.

FRANK MASON DILLARD, M.D., Mineral, Va., to Miss Evelyn Wilson Dixon, at Dewberry, Hewlett, Va., Dec. 22, 1914.

THOMAS REUBEN KELLER GRUBER, M.D., Cleveland, to Miss Alma Rennick of Columbus, Ohio, February 1.

FRANCIS JOSEPH PELANT, M.D., Solon, Ia., to Miss Minnie Arbes of New Ulm, Minn., February 9.

JOHN JOSEPH CONDRICK, M.D., to Miss Edith J. Cosgrove, both of Brockton, Mass., February 1.

JESSE HARPER LANDER, M.D., Greenville, Tex., to Miss Elizabeth Collier Floyd, February 4.

JOHN J. RYAN, M.D., St. Paul, to Miss Edwina Hurlbut of Oconomowoc, Wis., February 4.

CLARENCE WALTER HALL, M.D., to Miss Media Swennes, both of Denver, Colo., recently.

Deaths

Dudley Sharpe Reynolds, M.D. University of Louisville, Ky., 1868; a Fellow of the American Medical Association and one of the most prominent ophthalmologists of the South; died at his country home near Louisville, February 4, from cerebral hemorrhage, aged 72. He was a native of Bowling Green, Ky., and served during the Civil War as assistant surgeon of U. S. Volunteers; after his graduation and a term of study abroad, he returned to Louisville where he practiced his specialty of diseases of the eye, ear, nose and throat for nearly half a century. From 1874 to 1901, he was professor of ophthalmology and otology and medical jurisprudence in the Hospital College of Medicine, Louisville, and was president of the faculty of the institution from 1891 to 1893. He was surgeon to the Louisville City Hospital from 1872 to 1892 and local surgeon of the Monon System from 1894 to 1899. His society activities included the chairmanship of the Section on Ophthalmology of the American Medical Association in 1880-1881, the presidency of the Mississippi Valley Medical Association in 1888 and the treasurership from 1899 to 1901. Dr. Reynolds was a specialist of wide reputation and of great skill; a teacher and writer of force and ability, a wise counsellor and a man universally beloved and esteemed.

Samuel Wood Langmaid, M.D. Harvard Medical School, 1864; a member of the American Laryngological Society and a well-known specialist on diseases of the throat and nose of Boston; a member of the Massachusetts Medical Society; acting assistant surgeon of volunteers during the Civil War, and later in the U. S. Marine Hospital Service; physician to the throat department of the Massachusetts General Hospital; for several years president of the Harvard Musical Association; died at his home in Brookline Mass., February 3, aged 77.

Louis A. Rodenstein, M.D. University of Pennsylvania, Philadelphia, 1859; a veteran of the Mexican War and surgeon of U. S. Volunteers during the Civil War; later surgeon of the Twenty-Second Infantry, N. G., N. Y.; a member of the New York Board of Education and Board of Police Surgeons; one of the founders of the Manhattan General Hospital in 1885 and surgeon-in-chief to that institution; died at his home in New York City, February 2, aged 80.

Abram Trego Shertzer, M.D. University of Maryland, Baltimore, 1869; fleet surgeon of U. S. Naval Volunteers during the Civil War and staff surgeon in the German service during the Franco-Prussian War; a practitioner of Baltimore for nearly fifty years; local surgeon to the Pennsylvania System and the Baltimore City Railroad; died at his home in Baltimore, January 22, from heart disease, aged 70.

D'Orsay Hecht, M.D. Northwestern University Medical School, 1898; associate professor of nervous and mental diseases in this college; attending neurologist Michael Reese, Wesley and other hospitals of Chicago; a Fellow of the American Medical Association; president of the Mississippi Valley Medical Association 1913-14; a member of various neurologic and psychologic societies; died suddenly at his home in Chicago, Feb. 16, 1915, of angina pectoris, aged 41.

Robert Shoemaker Dana, M.D. Jefferson Medical College, 1857; surgeon of the Ninth Pennsylvania Volunteer Cavalry and One Hundred and Seventh Pennsylvania Volunteer Infantry during the Civil War; at one time medical director of the Department of New Jersey, G. A. R.; for several years treasurer of the Morrisville (Pa.) Rubber Works; died at his home near Morrisville, February 1, from senile debility, aged 82.

William H. Rowe, M.D. Rush Medical College, 1882; a Fellow of the American Medical Association and a member of the Association of Military Surgeons of the United States; formerly vice-president of the State Board of Health; surgeon-general of Minnesota since 1910; for several terms mayor of St. James, Minn., and president of the St. James Hospital; died in that institution, February 4, from nephritis, aged 56.

George Bailey Little, M.D. Rush Medical College, 1873; president of the Burlington, Iowa, Hospital Training School for Nurses; and for forty-two years a practitioner of Burlington; once president of the Des Moines County Medical Society and for eight years a member of the Burlington School Board; died at his home, January 31, from cerebral hemorrhage, aged 63.

Cyrus Fogg Brackett, M.D. Medical School of Maine, Brunswick, 1863; professor of chemistry in his Alma Mater from 1864 to 1873; professor of physics at Princeton University for thirty-five years, and since 1908 emeritus professor; a member of the American Philosophical Society and American Physical Society; died at his home in Princeton, January 29, aged 81.

Jacob Huggins, M.D. University of Pennsylvania, Philadelphia, 1860; a charter member of the Medical Association of the State of Alabama and vice-president in 1891 and 1892; a member of the state board of censors in 1898; for three years surgeon in the Confederate service during the Civil War; died at his home in Newbern, Ala., February 1, aged 77.

Edmund Dulin Laughlin, M.D. Miami Medical College, Cincinnati, 1868; Bellevue Hospital Medical College, 1872; for several terms a trustee of the Indiana Medical College and once vice-president of the Indiana State Board of Health; for many years a practitioner of Orleans, Ind.; died in the home of his son at Evansville, February 6, aged 87.

Philip J. Wardner, M.D. Rush Medical College, 1857; of Cleveland, Ohio; surgeon of the Fifty-Seventh and later of the One Hundred and Twentieth Illinois Volunteer Infantry during the Civil War; for more than thirty years retired from practice and in business in Cleveland; died at his home in that city, Dec. 20, 1914, from bronchitis, aged 82.

Patrick H. Caney, M.D. Kentucky School of Medicine, Louisville, 1892; a Fellow of the American Medical Association; physician to the Knox County (Ind.) Infirmary and secretary of the Vincennes Board of Health; for three terms coroner of Knox County; died at his home in Vincennes, Ind., January 30, from lobar pneumonia, aged 52.

Daniel Clark Stillians, M.D. Chicago Medical College, 1869; one time president of the Alumni Association of his Alma Mater; a Fellow of the American Medical Association; a veteran of the Civil War; until the past four years a resident of Chicago; died at his home in Redlands, Cal., February 12, aged 74.

George Howard Hungerford, M.D. University of Pennsylvania, Philadelphia, 1909; a Fellow of the American Medical Association; medical examiner for the Pennsylvania Railroad Company in Philadelphia; died in the German Hospital in that city, February 1, after an abdominal operation, aged 29.

Zachary Taylor Funk, M.D. Kentucky School of Medicine, Louisville, 1876; once president of the Harrison County (Ind.) Medical Society, treasurer of Harrison County and secretary of the Board of Health of Corydon; a veteran of the Civil War; died at his home Corydon, Nov. 19, 1914, aged 67.

Frank Elmer Hill, M.D. Western Reserve University, Cleveland, 1881; for thirty-two years a practitioner of Buffalo; supreme medical director of the National Order of Buffaloes, and Sovereign Medical Director of the Order of Saturn; died at his home in Buffalo, February 3, aged 55.

Bascom Kavanaugh, M.D. University of Texas, Galveston, 1913; and later assistant physician at the State Quarantine Station; who was shot near his home in San Augustine, Tex., January 7; died January 15, aged 32.

Frank Clary Anderson, M.D. Vanderbilt University, Nashville, Tenn., 1901; formerly a practitioner of Arkansas, Alabama and Colorado; died in Brookwood, Ala., January 11, from pulmonary tuberculosis, aged 34.

J. G. Lapp (license, years of practice, Ohio, 1896), a member of the Ohio State Medical Association; auditor of Monroe County, Ohio; died at his home in Woodsfield, Ohio, about January 24, from heart disease.

Joseph Tottenham Cook, M.D. Homeopathic Hospital College, Cleveland, 1881; attending physician to the Buffalo Homeopathic Hospital; died at his home in Buffalo, January 18, from facial erysipelas, aged 59.

Jonathan N. Faust, M.D. Jefferson Medical College, 1867; a member of the Medical Society of the State of Pennsylvania; died at his home in Reynoldsville, Pa., Dec. 26, 1914, from cerebral hemorrhage, aged 70.

Isaiah H. Herring (license, Forty-Eighth Judicial District Board, Texas, 1901), formerly a member of the State Medical Association of Texas; died at his home in Fallon, near Mexia, Tex., January 13, aged 44.

Charles Pickney Hanson, M.D. Chattanooga (Tenn.) Medical College, 1905; formerly a member of the Arkansas Medical Society; died at his home in Berea, Ark., January 23, from tuberculosis, aged 33.

John Borough, M.D. Homeopathic Hospital College, Cleveland, 1874; a veteran of the Civil War; for forty years a practitioner of Mishawaka, Ind.; died at his home Dec. 31, 1914, from nephritis, aged 71.

John R. McLaurin, M.D. Louisville Medical College, 1884; a practitioner and druggist of Toomsuba, Miss.; died at his home in that place, January 5, from the effects of poisoning by carbolic acid, aged 56.

Charles Dudley Morrow, M.D. Lincoln (Neb.) Medical College, 1895; a practitioner and druggist of Prosser, Neb.; died in a hospital in Hastings, Neb., January 9, as the result of a nervous breakdown.

George Ernest Millichamp, M.D. University of Toronto, Ont., 1895; formerly chief medical examiner of the Union Life Assurance Company, Toronto, Ont.; died at his home in that city, January 7.

James Graeme Richardson, M.D. Manitoba Medical College, Winnipeg, 1911; of Winnipeg; died in the Winnipeg General Hospital, recently, from septicemia following disease of the ear, aged 28.

Winfield Scott Norcross, M.D. State University of Iowa, College of Homeopathic Medicine, Iowa City, 1886; a veteran of the Civil War; died at his home in Auburn, Maine, January 7, aged 70.

Chester Monroe Baker, M.D. Long Island College Hospital, Brooklyn, 1896; a member of the Massachusetts Medical Society; died at his home in Hyannis, Mass., Dec. 12, 1914, aged 39.

Charles W. Patton, M.D. Kansas City (Mo.) Medical College, 1888; a member of the Missouri State Medical Association; died at his home in Mooresville, January 26, aged 62.

John Calvin Craig, M.D. University of Michigan, Ann Arbor, 1873; of Liberty, Ill.; died in Conway, Ark., Dec. 14, 1914, from sarcoma of the jaw, following an operation, aged 66.

Franklin Thomas Moore, M.D. Jefferson Medical College, 1897; a member of the Staff of the Syrian Protestant College, Beirut, Syria; died suddenly in that place, January 15, aged 48.

Charles E. Reese, M.D. Medical College of Ohio, Cincinnati, 1885; local surgeon of the C. and M. V. Railroad; died at his home in Cedar Heights, near Lancaster, Ohio, Nov. 1, 1914.

Samuel T. Baldridge, M.D. State University of Iowa, Iowa City, 1887; a member of the Illinois State Medical Society; died at his home in Chicago, February 2, aged 52.

William G. Schmidt, M.D. Missouri Medical College, St. Louis, 1891; a practitioner and druggist of Quincy, Ill.; died at his home, January 16, from disease of the liver, aged 54.

Joseph Kalisher, M.D. New York University, New York City, 1881; a Fellow of the American Medical Association; died at his home in New York City, January 27, aged 57.

John J. Rigg, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1885; died at his home in Fort Madison, Iowa, January 18, from cerebral hemorrhage, aged 61.

Richard Runyan Rogers, M.D. University of Pennsylvania, Philadelphia, 1862; once surrogate of Mercer County, N. J.; died at his home in Trenton, N. J., January 14, aged 91.

Bradford Patterson, M.D. American Medical College, Cincinnati, 1865; surgeon of volunteers during the Civil War; died at his home in Barrie, Ont., Nov. 8, 1914, aged 94.

David Hume McDonald, M.D. University of Louisville, Ky., 1855; for fifty-six years a practitioner of Quincy, Ind.; died at his home in that place, January 17, aged 83.

Thomas A. Gamble, M.D. American University of Pennsylvania, Philadelphia, 1873; a veteran of the Civil War; died at his home in Troy, Pa., January 17, aged 70.

Henry W. McLaughlin, M.D. College of Physicians and Surgeons, Baltimore, 1885; died at his home in Marietta, Ohio, January 20, from locomotor ataxia, aged 54.

Benjamin Ewell Keys, M.D. University of Nashville, Tenn., 1900; a practitioner and druggist of Fate, Tex.; died at his home, January 5, from pneumonia, aged 50.

Walter Bradley Hill, M.D. Jefferson Medical College, 1864; formerly of St. Louis; died at his home in San Jose, Cal., January 14, from senile debility, aged 72.

Louis Lohman, M.D. University of Giessen, Germany, 1846; a physician and druggist of Kimmswick, Mo.; died at his home in that place, January 8, aged 94.

Thomas Pope Dudley Pound, M.D. Louisville (Ky.) Medical College, 1875; died at his home in Jeffersontown, Ky., January 9, from heart disease, aged 70.

L. G. Bombarger, M.D. Memphis Hospital Medical College, 1901; was found dead in his office, January 15, from accidental gas asphyxiation, aged 46.

Herbert James Pratt, M.D. Harvard Medical School, 1868; a musician and linguist of Plymouth, Mass.; died at his home in that place, January 21, aged 72.

John T. Digges, M.D. Georgetown University, Washington, D. C., 1869; a Confederate veteran; died at his home in La Plata, Md., January 13, aged 73.

Francis Alfred Comfort, M.D. University of Michigan, Ann Arbor, 1866; died at his home in Logan, Neb., January 21, from heart disease, aged 73.

Charles William Brunner, M.D. Long Island College Hospital, Brooklyn, 1891; died at his home in Williamsburg, Brooklyn, January 22, aged 59.

Leonard W. Carpenter, M.D. Homeopathic Hospital College, Cleveland, 1865; died at his home in Trumansburg, N. Y., Nov. 8, 1914, aged 81.

George W. Burleigh, M.D. Indiana Eclectic Medical College, Indianapolis, 1887; died at his home in Los Angeles, Cal., January 19, aged 79.

William Melandston Nead, M.D. Homeopathic Hospital College, Cleveland, 1884; died at his home in Albany, N. Y., Dec. 26, 1914, aged 55.

Scott Fulton, M.D. Columbus (Ohio) Medical College, 1892; died at his home in Columbus, Ohio, January 15, from pneumonia, aged 50.

Robert Davis Reynolds, M.D. University of Alabama, Mobile, 1880; died at his home in Ozark, Ala., January 12, from heart disease.

William Havens, M.D. Michigan Homeopathic Medical College, Lansing, 1871; died at his home in St. Johns, Mich., January 10, aged 84.

Charles H. L. Johnston, M.D. L.R.C.S. Edinburgh, 1865; died at his home in St. John, N. B., January 18, from heart disease, aged 70.

J. E. Cooper, M.D. Louisville Medical College, 1895; died at his home in Golden, Tex., January 19, from cerebral hemorrhage.

William Lewis Lett (license, Oklahoma, 1908), also a druggist; died at his home in Lamar, Okla., January 1, aged 61.

Maxime Landry, M.D. Tulane University, New Orleans, 1893; of New Orleans; died in Mandeville, La., January 14, aged 42.

Frédéric Lefils, M.D. Laval University, Quebec, 1892; died at his home in Montreal, January 8, aged 46.

Joseph S. McKinley, M.D. University of Nashville, Tenn., 1867; died at his home in Cordova, Tenn., January 12.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TOWNS' EPILEPSY TREATMENT

Another Fraudulent Bromid Mixture

Towns' Epilepsy Treatment is marketed by the Towns' Remedy Company of Milwaukee, Wis. A few years ago this preparation was known as "Dr. Towns' Epilepsy Cure" and was sold from Fond du Lac, Wis. Then came the Food and Drugs Act, which made false statements on the trade package come high, and as Towns' "patent medicine" is not and never was a "cure" the name of the product was changed to "Towns' Epilepsy Treatment." The Towns concern did not move directly from Fond du Lac to Milwaukee but was for a time located at Baltimore, Md.

The method by which the Towns alleged cure is brought to the attention of prospective victims is typical of the mail-order faker. Leaflets and "follow-up letters" are sent to those who answer the Towns advertisement. In addition to the usual testimonial, common to the "patent medicine" fraternity, Towns sends out "endorsements" of his nostrum from "authorities." One of these endorsements is, according to Towns, "from the highest authorities known." The "highest authority" referred to is Willard H. Morse, M.D., F.S.Sc. (Lond.), etc. Morse's name, as most of THE JOURNAL readers know, appears on alleged analytical reports and testimonials for numerous fraudulent preparations: consumption cures, epilepsy cures, rheumatism cures, cures for blindness—these are but a few of the fakes that have in their advertising armamentarium so-called chemists' certificates and "professional endorsements" bearing Morse's name. Another alleged endorsement of Towns' "cure" is an "editorial" entitled "Plain Truth About Proprietary Remedies" from the *American Journal of Health*. This publication was one of those journalistic parasites that batten on quackery. In a government report published a few years ago the federal officials made this statement:

"It appears by satisfactory proof . . . that this *American Journal of Health* is not a medical journal of good standing, and that it is simply a fraudulent publication printed to sell paid advertisements to various medical concerns doing a mail-order business, and to be then used by such concerns as an endorsement of a medical publication."

Apparently the Towns concern, in common with most medical mail-order frauds, disposes of its "sucker list" when such lists have no further financial value. At any rate it is a matter of government record that a fraudulent "epilepsy cure" of Cincinnati put out of business by the federal officials some time ago declared that it purchased the names of possible victims from Dr. Towns of Fond du Lac.

A bottle of Towns' "patent medicine" was submitted to the Association laboratory for examination. The chemists report:

CHEMISTS' REPORT[1]

One original bottle of "Towns' Epilepsy Treatment," manufactured by the Towns Remedy Co., Baltimore, Md., was submitted to the chemical laboratory for examination. The bottle contained a brown liquid, having extractive matter present, and with an odor of cinnamon and valerian. The specific gravity of the liquid at 15.6 C. was 1.2505. Qualitative tests demonstrated the presence of the following: Alcohol, ammonia, potassium, sodium, bromid, chlorid, iodid and sugar. Quantitative determinations yielded the following:

Alcohol (by volume)	1.00 per cent.
Ammonia (NH_3) (by weight)	1.82 per cent.
Potassium (K^+) (by weight)	2.98 per cent.
Sodium (Na^+) (by weight)	1.39 per cent.
Bromid (Br^-) (by weight)	12.81 per cent.
Chlorid (Cl^-) (by weight)	3.12 per cent.
Iodid (I^-) (by weight)	0.46 per cent.
Sugar (Sucrose) (by weight)	5.42 per cent.

Calculating from the bromid and iodid determinations, each dose, 1½ teaspoonfuls (1½ fluidrams), approximates the equivalent of 21.3 grains potassium bromid and 0.78 grain (about ¾ grain) potassium iodid. The daily dose (6 teaspoonfuls) corresponds to 85.2 grains potassium bromid and 3.12 grains potassium iodid. Considerable chlorid is also present, equivalent to approximately 6 grains sodium chlorid in 1½ teaspoonfuls, or 24 grains in the daily dose (6 teaspoonfuls).

The Towns label in its progress toward comparative truthfulness. *"Dr.* Towns' Epilepsy *Cure"* first became *"Dr.* Towns' Epilepsy *Treatment"* and is now simply "Towns' Epilepsy Treatment."

Evidently this "epilepsy cure," in common with other nostrums of the same kind, depends for its action on the presence of bromids. And Towns has made the claim that he "can cure ninety-six in every hundred cases" of epilepsy! In a card sent out by the Towns Remedy Company the public is led to infer that the nostrum has the endorsement of federal judges. Whether this is true we do not know. It is a matter of court record, however, that the federal authorities prosecuted the Towns concern for making false and misleading claims for the preparation. When brought before the federal judge the Towns concern pleaded guilty and was fined.

ARTICLES REFUSED RECOGNITION

Reports of the Council on Pharmacy and Chemistry

Below appear abstracts of the Council's action on articles refused recognition which were not deemed of sufficient importance to require a lengthy report. Previous instalments of abstracts appeared in THE JOURNAL, Nov. 14 and 21, Dec. 12, 1914, Jan. 2 and 30, 1915.

Virol

Virol, sold in the United States by the Etna Chemical Company, is put out by Virol, Ltd., London, England. It is said to be

"A preparation of bone marrow, red bone marrow of medullary structure of ox rib and calf bones, eggs, malt extract, and lemon syrup made from fresh fruit."

"Marrow fat is emulsified with extract of malt, lemon syrup and eggs, it is further enriched with soluble phosphates of lime, iron and soda, and glycerine solution of red bone marrow."

1. This is a condensed report of the chemists' findings. The details of analysis will appear in the Reports of the Chemical Laboratory of the American Medical Association for 1914.

Many of the therapeutic claims made for Virol the Council considered grossly exaggerated; among them are the following:

". . . a complete food for children."

". . . a complete nutrient."

"The value of the Lime-Salts (representing the Egg Shells) contained in Virol is fully illustrated in its influence upon Rickets; whilst Struma, Chronic Bronchitis, Anaemia and Influenza are all combated by its use in a degree, which, we venture to say, has never been approached."

"The fat, as represented by the Marrow-bone and Egg Yolk, is so minutely divided that it admits of even far more rapid absorption by the *villi* of the intestine than milk."

"It is an ideal form of food, readily digested and assimilated in the weakest of conditions."

"Virol has a marked effect on the metabolism of the body, increasing the production of opsonins and stimulating phagocytosis. As an adjuvant to the natural defensive processes of the patient in all diseases of bacterial origin its value can scarcely be over-estimated."

The objections of the Council were transmitted to Virol, Ltd. The firm's reply was reported to the Council by the referee of the Committee on Therapeutics who held that no adequate or satisfactory answer had been made to the objections raised against the advertising claims for Virol.

The claims made for Virol being unsubstantiated and unwarranted, the Council voted that the preparation be refused recognition.

In accordance with the practice of the Council, the exploiters of Virol were afforded an opportunity to comment on the foregoing statement before its publication. On their objecting to the findings, the entire matter was turned over to a second referee. This referee, in making his report, reviewed the claims made for Virol and commented on the lack of evidence to substantiate these claims. He stated that a chemical analysis of the preparation had yielded the following result:

"Sugar, as maltose	60.0 per cent.
Fat	13.2 per cent.
Proteins	3.2 per cent.
Ash	1.6 per cent.
Water and volatile matter	21.6 per cent.

"There is no appreciable diastatic action. A little glycerol is present in the volatile matter. The preparation is therefore an extract of malt with fat and a small amount of protein."

He then continues:

"That Virol has food value cannot be denied, but that it has sufficient value to warrant the claims of the manufacturers is not evident. Virol cannot be considered a complete food, as the advertising literature reiterates, or an ideal food for infants. The amount of protein is far too low in comparison with the carbohydrates to warrant this view. The dosage recommended is not large. Thirty gm. a day would furnish only about 1 gm. of protein and 4 gm. of fat. The 3 teaspoonfuls a day recommended for children would furnish protein and fat even below this.

"If employed alone it cannot be a complete or sufficient food, and if employed along with other articles of diet—milk and bread, for example—it is not easy to see wherein lies the efficacy of the small weights of fat and protein added in the form of Virol. Here the demand made on our credulity is too great, as the protein in the preparation is the familiar protein of eggs, meat and malt, and the fat largely that from the egg-yolk and marrow, according to the claims. It is not known that any specific virtues reside in these bodies, or in the egg-shells, also claimed as present.

"In the opinion of the present referee there is nothing in the composition of Virol to justify the claims made for it. The judgment and recommendations of the first referee follow from the facts and must be accepted by the Council."

The Council directed that the previously prepared report be allowed to stand and that it be published along with a suitable reference to the report of the second referee.

Salesthyl and Sal-Hyl

Salesthyl and Sal-Hyl, two preparations exploited by the New York Salesthyl Corporation, were submitted to the Council for inclusion in New and Nonofficial Remedies. Salesthyl, a liquid, marketed in capsules, was stated to be the menthyl ester of methyl salicylate. Sal-Hyl was said to be an ointment of Salesthyl, and its exact composition was not disclosed.

The first preparation, Salesthyl, is claimed to have the ordinary therapeutic actions of salicylates in general. The specific advantages appertaining to this product however, according to the manufacturers, make it more efficient; for example, they say it is "free from toxic effects," "a resorbent of uric acid" a "bacterizer" with "never-failing results."

From either a chemical or a pharmacologic standpoint, it is difficult to understand how the menthyl ester of methyl salicylate could be at the same time more efficient and less toxic than methyl salicylate itself. As to the peculiar terms "bacterizer" and "resorbent of uric acid," the meaning of which must be gessed at, the manufacturers have submitted no evidence that their products possess these hitherto unknown virtues.

The claims as to non-toxicity and greater efficiency were supported in the advertising circular by tabulated reports said to have emanated from "well-known medical practitioners," who for the most part were asserted to be connected with New York hospitals. All of these reports were dated July, 1912. Investigation showed that these reports must have been written within two months after these "well-known practitioners" had graduated from a homeopathic school. This school claims no special experience with salicylates (in fact the use of salicylates in rheumatic conditions is not considered a homeopathic measure). The Council held it misleading to characterize these recent graduates as "well-known practitioners." The reports themselves, however, were insufficient and unconvincing and even contradicted the claimed superiority of Salesthyl.

The Council also objected to the name "Salesthyl" as likely to be confused with the well-established name "sal-ethyl," a salicyl ester described in New and Nonofficial Remedies.

The false claims having been brought to the attention of the present owners—the New York Salesthyl Corporation—they explain that they obtained the reports among the assets of their predecessors, the "American Salesthyl Corporation"; that they acted in good faith; that they will withdraw the pamphlets from circulation; and that they desire to make all needed reforms. In view of this the Council voted that Salesthyl and Sal-Hyl be refused recognition with the understanding that further consideration will be given the products when the needed reforms have been made and satisfactory evidence of the value of the products has been submitted.

Analutos and Analutos Tablets

Analutos and Analutos Tablets, 0.5 Gm. were submitted to the Council by a representative of the Royal Pharmaceutical Works of Meppel, Holland.

Analutos was stated to be the calcium salt of acetyl-salicylic acid. The advantages claimed over acetyl-salicylic acid itself are that Analutos is more soluble and less liable to produce gastric disturbance. The evidence submitted was not sufficient to show that Analutos has any advantages over acetyl-salicylic acid, or that it or its properties were discovered by the manufacturers. It is simply an unessential modification of a well-known substance, offered without evidence of superiority or originality. The Council held that physicians should not be burdened with a new, arbitrary name which does not even indicate the relation of the product to its well-known basic constituent. Accordingly it was voted that Analutos and Analutos Tablets be refused recognition.

Budwell's Emulsion of Cod-Liver Oil, Nos. 1 and 2

The Budwell Pharmacal Company, Lynchburg, Virginia, which markets these preparations, claims that "No. 1" contains cod-liver oil, "Iodide of Arsenic," "Iodide of Calcium," and "Iodide of Manganese." "No. 2" is said to contain in addition to the ingredients of No. 1 creosote carbonate and guaiacol.

It is known that arsenous iodid is decomposed by contact with water. It is recognized that creosote carbonate is unstable and prone to liberate creosote. Iodide of manganese not being official, the supply on the market is not controlled in any way: tests of purity are not prescribed by the Pharmacopeia, the National Formulary, New and Nonofficial Remedies or other books of standards. Therefore doubt must be expressed as to the accuracy of the formulas as given. The

Council cannot accept such statements of composition without further evidence.

"No. 1" is commended for use in

"Chronic Rheumatism, Glandular Swellings, later forms of Syphilis, convalescence from Scarlet Fever, La Grippe and Malaria, Chronic Malarial Infection, Marasmus, Joint or other suppuration of standing, diseases of skin, chorea, anaemia, neurasthenia, obstinate neuralgia, scrofulous affections in general, and diarrhoea or dysentery (sub-acute or chronic) in childhood"

"No. 2" is said to be

"Prepared especially for the treatment of Chronic Throat, Nasal, Bronchial and Pulmonary Diseases."

In the advertising circular statements regarding the various ingredients of Budwell's Emulsion are quoted from obsolete text-books. These statements, for the most part, do not represent modern opinions on the subject. For instance, the circular praises the action of guaiacol as eliminated directly by the lungs, thus exerting a beneficial local effect and causing bacilli to diminish in numbers or to disappear. All of this is directly contradicted in authoritative modern publications on pharmacology, which hold that the excretion of guaiacol by the lungs is infinitesimal and its action on bacilli is nil. The Council held the preparations in conflict with its rules as follows:

1. Many of the therapeutic claims are exaggerations.

2. The method of exploitation amounts to an indirect invitation to the public to use these preparations as "consumption cures."

3. The preparations are unscientific, they constitute a reprehensible invitation to uncritical prescribing and their use is inimical to the best interests of the profession and the public. It is difficult to imagine in what conditions such a combination would be indicated. These preparations are a remnant of the days of polypharmacy. Their use is not in keeping with present medical thought and practice.

Citarin

Citarin, a product of the Farbenfabriken vorm. Friedr. Bayer and Co. (The Bayer Company, Inc., New York) admitted to N. N. R. in 1906, is discussed in New and Nonofficial Remedies, 1914, as follows: "This is one of the compounds which it is claimed increase the elimination of uric acid by forming very soluble compounds with that substance. Citarin is claimed to be useful for gout and chronic rheumatism." The referee of the Council in charge of formaldehyd derivatives reported that Citarin is recommended chiefly, if not solely, for increasing the solubility of uric acid in gouty conditions, this supposed effect being referred to the liberation of formaldehyd as Citarin is the sodium salt of an acid obtained by acting on citric acid with paraformaldehyd. The view that the solubility of uric acid could be increased by any such measures in the body has now been generally abandoned. For this reason the Council held that experience has failed to demonstrate the value of Citarin and directed its omission from the next edition of New and Nonofficial Remedies as a useless and unscientific product (Rule 10).

Past and Present in Biologic Investigation.—The sum and substance of biological inquiry may be embodied in two questions: What is the living organism, and how has it come to be? We often find it convenient to lay the emphasis on one or the other of these questions, but fundamentally they are inseparable. The existing animal bears the indelible impress of its past; the extinct animal can be comprehended only in the light of the present. For instance, the paleontologist is most directly concerned with problems of the past, but at every step he is confronted by phenomena only to be comprehended through the study of organisms as they now are. Our main causal analysis of evolution must be carried out by experimental studies on existing forms. All this seems self-evident, yet the singular fact is that only in more recent years have students of evolution taken its truth fully to heart. —Edmund B. Wilson, *Science*.

Correspondence

The Smegma Bacillus

To the Editor:—Your recent editorial (Jan. 23, 1915, p. 348) on the smegma bacillus does not cover all the facts. I have several times obtained from specimens of urine drawn by the catheter an acid-fast bacillus closely resembling the tubercle bacillus. On at least one occasion I have obtained the same bacillus from a hydronephrotic kidney that was certainly not tuberculous (*Am. Jour. Med. Sc.*, 1915, cxlix, 30).

Perhaps the precaution of previous urethral irrigation, as suggested by Young and Churchman, might have eliminated the acid-fast bacilli found in the bladder urine; but it could not have had the same effect on a specimen obtained by ureter catheter. That these were smegma bacilli I cannot assert. The important point is that they closely resembled the tubercle bacillus. The absence of tuberculosis was demonstrated by operation in the hydronephrotic case mentioned above, and in two cases in which the bacilli were obtained by catheter from the bladder. One was a gonorrheal pyelitis, the other a gonorrheal prostate.

In my hands the following method has proved a safe one for differentiation of these bacilli from real tubercle bacilli. The essential element is the prolonged immersion in alcohol, which appears to eliminate many bacteria that are acid- and alcohol-fast when stained briefly.

Gabbett's Method: After fixing, the smear is flooded with Ziehl's carbolfuchsin and heated to moderate steaming for six minutes. The slide is then washed in running water until no more carbolfuchsin comes away. Without drying, the slide is then flooded with Gabbett's methylene-blue solution for thirty seconds and again washed in water. If any acid-fast bacilli are found, the slide should be immersed in 95 per cent. alcohol for twenty-four hours and again examined. If the bacilli have retained their staining they are tubercle bacilli.

EDWARD L. KEYES, JR., M.D., New York.

Transplantation of the Anterior Temporal Artery

To the Editor:—My attention has just been called to the fact that Dr. George H. Monks of Boston has transplanted the anterior temporal artery with the flap attached to repair a defect made by excision of the lower eyelid for carcinoma. The description of his operation was published in the *Boston Medical and Surgical Journal*, Oct. 20, 1898. While there is considerable difference in some of the details of the operation, the principle is identical with that mentioned in my article on "Transplantation of the Anterior Temporal Artery" (THE JOURNAL, Jan. 30, 1915, p. 408). Of course, Dr. Monks is entitled to priority. I did not know of Dr. Monks' work when my paper was written.

J. SHELTON HORSLEY, M.D., Richmond, Va.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

INQUIRIES ABOUT THE HARRISON LAW

To the Editor:—In the issue of February 6 (THE JOURNAL, p. 518), in your editorial comments on the Harrison bill, and again in answering F. R. F., in this last issue (THE JOURNAL, Feb. 13, 1915, p. 611), you have asserted that physicians must keep a record of narcotic drugs dispensed. I have this day received from the collector of internal revenues for this district my registration blank and a copy of this law. Paragraph (a) of Sec. 2. says we must keep a record of these drugs, "except such as may be dispensed or distributed to a patient upon whom such physician, dentist or veterinary surgeon shall personally attend."

Art. 10. of the regulations says among other things, "A record, however, is required to be kept of all such drugs so dispensed or distributed (except such as may be dispensed or distributed to a patient, upon whom such physician, dentist or veterinary surgeon shall personally attend, i. e., personally visit)."

I might add that a local attorney advises me that no record would be required, according to the law, unless some one came into our office and made an explicit demand for one of these narcotics.

In view of these exceptions, just how much of a record is a dispensing physician supposed to keep?

C. C. PROBERT, M.D., West Branch, Mich.

ANSWER.—The statements in THE JOURNAL, referred to by our correspondent, were general provisions and were not intended to include the specific exemptions in the bill, which provide that drugs dispensed or distributed to a patient, on whom a physician shall personally attend, do not need to be recorded.

Article 10 of the regulations reads: "Under the exempting provisions of Section 2 of the act, no written order is required for the 'dispensing or distribution of any of the aforesaid drugs to a patient by a physician, dentist, or veterinary surgeon, registered under this act, in the course of his professional practice only.' A record, however, is required to be kept of all such drugs so dispensed or distributed (except such as may be dispensed or distributed to a patient, upon whom such physician, dentist, or veterinary surgeon shall personally attend . . . i. e., personally visit) and must show:

"1. The date when any such drug is dispensed or distributed;

"2. The kind and quantity dispensed or distributed in each case; and

"3. The name and residence of the patient to whom such drug was dispensed or distributed. . . .

"The record so kept must be preserved for a period of two years from the date of dispensing or distributing, and will be subject to inspection as provided in Section 5 of the act. Each physician, dentist and veterinary surgeon must supply himself with a suitable blank book for such record."

To the Editor:—I notice in last week's JOURNAL your two comments on the new narcotic law. There is one point that you do not mention that should be made clear. If I understand the language of the law and the regulations, it exempts keeping a record of morphin and cocain and its preparations where it is dispensed directly to the patient. See Internal Revenue Regulation No. 35, page 5, line 4, and page 13, Article 10, line 6.

As I understand the language, if a physician sends the narcotic by the hand of another party, he has to keep a record. If he personally attends the patient a record is not necessary.

Is this your understanding? If not I should like to get it clear.

M. T. CLARK, M.D., Temple, Okla.

ANSWER.—See the preceding answer. The regulations except drugs dispensed or distributed to a patient on whom the physician shall personally attend, that is, personally visit. Whether this applies only to drugs dispensed at the actual time of such a visit or to patients on whom the physician is at the time personally attending, would seem to be a matter for further interpretation.

To the Editor:—In re the Harrison bill, which goes into effect March 1, 1915, are there any provisions for border line towns? I am practicing on the state line between New York and Vermont. Do I have to make application to the deputy commissioner of internal revenue in New York as well as in Vermont for a registry number, and also to report to him?

E. F. CROFUTT, M.D., Poultney, Vt.

ANSWER.—The law provides that every person affected shall register with the collector of internal revenue of the district, and that the office, or if none, then the residence of any person, shall be considered his place of business. No provision appears to be made regarding border line towns; nor would it seem to be necessary for any individual to register in more than one district. Article 1, paragraph 2 of the regulations reads, "If the applicant (other than a physician, dentist or veterinarian) has more than one place of business . . . a separate application for registry must be made." This would seem to imply that physicians were only required to register in a single district.

To the Editor:—Please send me the names of drugs which a doctor is barred from lawfully using, in case he does not pay the $1 revenue tax by March 1. C. S. WHITEHEAD, M.D., Xenia, Ohio.

ANSWER.—"Opium or coca leaves or any compound, manufacture, salt, derivative, or preparation thereof."

LANDAU COLOR TEST FOR SYPHILIS

To the Editor:—In reference to the Landau color test for serodiagnosis of syphilis noted in THE JOURNAL, Oct. 10, 1914, p. 1317, the directions call for a 1 per cent. solution of iodin in methanetetrachlorid. What is the strength of the latter?

A. JUDSON BENEDICT, M.D., Newburgh, N. Y.

ANSWER.—Landau's original communication on this test was published in the *Wiener klinische Wochenschrift*, 1913, xxvi, 1702, under the title "Untersuchungen über eine Reaktion luetischer Sera mit einem Jodöl-Reagens." In this preliminary paper Landau described his test as follows, using as a reagent paraffin oil, to which was added tincture of iodin in the proportion of 5 drops of the tincture to 10 c.c. of the oil: To 0.2 c.c. of clear serum are added 2.5 c.c. of the reagent, and the mixture thoroughly shaken. The tubes are set aside in a dark place for from five to fifteen hours, when positive reactions will be shown in the perfectly clear decolorized mixture, while the negative reactions are indicated by a persistent yellowish-red coloration.

In his later work, we are informed, he uses a reagent containing more iodin, but employs less of the reagent, so that the end result is the addition of less iodin to the serum than in his first tests. His technic, as published in THE JOURNAL, as given above, is as follows: To 0.2 c.c. of the clear serum, add 0.01 c.c. of the reagent, consisting of a 1 per cent. solution of iodin in a solution of methanetetrachlorid of full strength (the latter is commonly known as carbon tetrachlorid, and is a colorless liquid somewhat resembling chloroform). Shake the mixture thoroughly until the iodin coloration has disappeared. Set aside for four or five hours at room temperature and examine. Positive reactions are indicated by a clear transparent yellow, while negative results are shown by an opaque whitish-gray mixture. These differences are not clearly distinguishable in all cases, so that one may test the mixtures for unbound iodin by the addition of a few drops of starch paste. As is well known, the presence of iodin is indicated by a blue coloration in the reaction with starch, so that negative tests will be shown by a blue color and positive tests by no change of color on the addition of the starch. This refinement is frequently necessary, as the variations in coloration and appearance of the serum are not always marked.

In using this test, as outlined above, experience has shown that only fresh serums are reliable, as has also been shown by Landau. The most reliable results are shown with serums not over ten hours old. The results with the test, fresh serums being used, parallel the Wassermann tests quite closely. This test would seem worthy of study, especially as a confirmatory test along with the Wassermann. It cannot, however, be relied on when used with serums sent to the laboratory from a distance.

PHENOL IN TETANUS

To the Editor:—In THE JOURNAL, Jan. 16, 1915, p. 278, you give an abstract of an article on "Phenol in Tetanus." I should like to ask if sixteen of the twenty-two patients did not die of phenol poisoning when they were receiving subcutaneously from 12 to 15 grains of phenol twice a day. Unless the patients suffering from tetanus by some unknown way can tolerate such doses of phenol without getting poisoned by it, it would seem pretty risky to try in every case of tetanus such heroic measures as described in this abstract. Likewise the dose of the chloral is enormous. I would appreciate your opinion in regard to the dosage of the phenol as given in the abstract. Is it safe or not to administer such a dose in tetanus?

K. H. MALLARIAN, M.D., Fargo, N. Dak.

ANSWER.—The doses of phenol given by Sainton in the article referred to do not approximate the fatal dose, which is as a minimum 15 gm. (½ ounce). It should be remembered that tetanus is an extremely fatal disease, and all forms of treatment employ heroic doses of the remedies used. The doses given by Sainton are about 50 per cent. above those recommended by Baccelli. Baccelli thinks that patients with tetanus are extremely tolerant to phenol.

The dose of chloral is considerably above doses which have proved fatal in exceptional cases, but the chloral in tetanus is probably largely counteracted by the convulsive condition of the patient. While the minimum fatal dose of chloral has been put at from 1.5 to 2 gm. (20 to 30 grains), much larger doses have been used in tetanus without serious results. In a case of tetanus, 93 gm. or 3 ounces were given in twenty-four hours without causing death. Anders recommends chloral to be given by rectal injections, 2.59 gm. or 40 grains, at a dose.

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Medical Education and State Boards of Registration

COMING EXAMINATIONS

CONNECTICUT: New Haven, March 8-9. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven. Homeopathic: New Haven, March 9. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Eclectic: New Haven, March 9. Sec., Dr. T. S. Hodge, 19 Main St., Torrington.

FLORIDA: Homeopathic: Jacksonville, March 5, Sec., Dr. C. W. Johnson, 33 E. Monroe St., Jacksonville.

MAINE: Portland, March 9-10. Sec., Dr. F. W. Searle, 776 Congress Street.

MASSACHUSETTS: Boston, March 9-11. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MISSOURI: St. Louis, March 22-24. Sec., Dr. J. A. B. Adcock, State House, Jefferson City.

RHODE ISLAND: Providence, April 1-2. Sec., Dr. Gardner T. Swarts, 315 State House, Providence.

Illinois October Report

Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, reports the written examination held at Chicago, Oct. 6-8, 1914. The total number of subjects examined in was 16; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 118; of whom 103 passed and 9 failed. Six candidates did not complete the examination. The following colleges were represented:

College	Year Grad.	Total No. Licensed
PASSED		
Bennett Medical College ..... (1912,1) (1913,5) (1914,17)		23
Chicago College of Medicine and Surgery (1909,1) (1910,1) (1911,2) (1912,1) (1913,3) (1914,28) 36.		
Hahnemann Medical College and Hospital, Chicago (1912,1) (1913,1) (1914,1) 3.		
Hering Medical College	(1913)	1
Jenner Medical College	(1914)	3
Northwestern University	(1914)	6
Reliance Medical College	(1911)	1
Rush Medical College ..... (1912,1) (1913,1) (1914,5)		7
University of Illinois ..... (1913,1) (1914,10)		11
Louisville and Hospital Medical College	(1908)	1
American Medical College, St. Louis.....	(1912) (1914)	2
Barnes Medical College	(1899)	1
University and Bellevue Hospital Medical College ...	(1914)	1
University of Pennsylvania	(1914)	1
Woman's Medical College of Pennsylvania	(1906)	1
Meharry Medical College	(1914)	3
Western University, London, Ont.....	(1909)	1
National University of Athens.....	(1909)	1
FAILED		
Bennett Medical College	(1914)	1
Chicago College of Medicine and Surgery.....	(1914)	1
College of Physicians and Surgeons, Chicago	(1901)	1
College of Med. and Surg., Physio-Medical, Chicago	(1909)	1
Jenner Medical College	(1914)	1
Illinois Medical College	(1910)	1
Detroit College of Medicine	(1910)	1
Royal University of Palermo	(1911)	1
University of Zurich, Switzerland	(1911)	1

Mississippi October Report

Dr. E. H. Galloway, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, Oct. 27-28, 1914. The total number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 24, of whom 18 passed, including 1 osteopath, and 6 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Alabama	(1914)	86
Atlanta College of Physicians and Surgeons	(1913)	86
Atlanta Medical College	(1914) 77,	88
Tulane University of Louisiana	(1913) 86; (1914)	83
Jefferson Medical College	(1913)	85
Memphis Hospital Medical College (1906) 75; (1913) 75, 75, 75,		79
University of Tennessee.....	(1914) 77, 77,	79
Vanderbilt University	(1914)	76
University of Virginia.....	(1914)	83
FAILED		
Collee of Physicians and Surgeons, Little Rock.....	(1911)	67
Chicago College of Medicine and Surgery.....	(1914)	69
Mississippi Medical College.....	(1911)	33
Memphis Hospital Medical College.....	(1907)	66
University of Tennessee	(1914)	72
Vanderbilt University	(1914)	67

One candidate, a graduate of the University of Virginia, 1905, was granted a license through reciprocity with Virginia.

New Jersey October Report

Dr. Horace G. Norton, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, Oct. 20-21, 1914. The total number of subjects examined in was 9; total number of questions asked, 90; percentage required to pass, 75. The total number of candidates examined was 33, of whom 22 passed, including two osteopaths, and 11 failed. Thirty candidates were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Georgetown University	(1913)	75.5
Howard University	(1914)	79
Johns Hopkins University	(1912)	82.7
University of Michigan, Homeo. Medical College..	(1914)	81.5
Albany Medical College.....	(1914)	75.8
New York Homeo. Med. Coll. and Flower Hosp. (1913) 78.8 (1914) 80, 81.		
University and Bellevue Hosp. Med. Coll. (1913) 80, 81; (1914) 81, 82.3, 82.5, 83.3.		
Jefferson Medical College (1912) 75.1; (1914) 75, 79.3, 80.		
Woman's Medical College of Pennsylvania	(1914)	78.3
University of Virginia	(1911)	78.4
FAILED		
Georgetown University	(1908)	68.2
Howard University	(1907)	71.8
College of Phys. and Surgs., Baltimore....	(1890) 71; (1911)	69.8
Fordham University	(1913)	71.6
University of the City of New York.....	(1891)	70
New York Homeo. Med. Coll. and Flower Hosp.....	(1913)	70
Jefferson Medical College.....	(1914)	72.5
Royal University of Berlin.....	(1901)	52.5
Royal University of Naples, Italy	(1893) 57.4; (1895)	65.2

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Medical School of Maine.....	(1914)	Maine
Baltimore Medical College.....	(1898)	Vermont
Baltimore University	(1900)	New York
Boston University	(1910)	New Hamp.
Tufts College Medical School.....	(1905)	Maine
College of Phys. and Surgs. in the City of N. Y. (1894) (1904) (1905) New York.		
Columbia University	(1913,2)	New York
Cornell University	(1911,3)	New York
Eclectic Medical College of the City of New York (1893) (1912) New York.		
New York Homeo. Med. Coll. and Flower Hosp....	(1906)	New York
Univ. and Bellevue Hosp. Med. Coll. (1912) (1913) (1914)		New York
Hahnemann Med. Coll. and Hosp., Philadelphia ..(1913,3)		Penna.
Jefferson Medical College.....	(1910) (1912)	Penna.
Medico-Chirurgical College of Philadelphia.....	(1914)	Delaware
University of Pennsylvania	(1895) (1912)	Penna.
University of Vermont.....	(1910) (1912)	Vermont
Medical College of Virginia.....	(1894)	Virginia

Oklahoma October Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Muskogee, Oct. 6-8, 1914. The total number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 14, of whom 6 passed and 8 failed, including 1 osteopath. Sixteen candidates, including 1 osteopath, were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
University of Arkansas	(1914)	82
Chicago College of Medicine and Surgery.....	(1914)	78
Rush Medical College	(1904)	85
Maryland Medical College.....	(1912)	72
Jefferson Medical College.....	(1913)	83
Meharry Medical College.....	(1914)	79
FAILED		
University of Arkansas	(1912) 67; (1914)	63
Leonard Medical School	(1913)	63

Meharry Medical College	(1914)	59, 69 *
University of West Tennessee	(1909)	*

* No grade given.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1910)	Arkansas
Atlanta College of Physicians and Surgeons	(1913)	Georgia
Georgia College of Eclectic Medicine and Surgery	(1913)	Georgia
University of Georgia	(1904)	Georgia
Chicago Coll. of Med. and Surg.	(1913)	Arkansas; (1914) Texas
Kentucky University	(1906)	Kentucky
University of Louisville	(1892)	Indiana; (1909) New Mexico; (1911) Tennessee.
Tulane University of Louisiana	(1901)	Texas
Maryland Medical College	(1904)	W. Virginia
Eclectic Medical College, Cincinnati	(1875)	Michigan
Memphis Hospital Medical College	(1907)	Texas
Tennessee Medical College	(1908)	Tennessee

Connecticut November Report

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the oral, practical and written examination held at New Haven, Nov. 10-11, 1914. The total number of subjects examined in was 7; total number of questions asked, 70; percentage required to pass, 75. The total number of candidates examined was 17, of whom 11 passed and 6 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Physicians and Surgeons, Baltimore	(1912)	80
Maryland Medical College	(1912)	79.4
University of Maryland	(1914)	89.2
Tufts College Medical School	(1912)	75.2
University of Michigan, Dept. of Med. and Surg.	(1910)	78.1, 82.8
Columbia University	(1913)	77.6
Cornell University	(1913)	75.5
University College of Medicine, Richmond	(1905)	79.2
Royal University of Catania, Italy	(1912)	76.5
University of Zurich	(1908)	75.8

FAILED

Kentucky School of Medicine	(1906)	55.5
Maryland Medical College	(1913)	61.8, 68.2
College of Physicians and Surgeons, Boston	(1908)	68
Fordham University	(1909)	57.1
University of the South	(1902)	61.2

Nevada November Report

Dr. Simeon L. Lee, secretary of the Nevada State Board of Medical Examiners, reports the written examination held at Carson City, Nov. 2-4, 1914. The total number of subjects examined in was 13; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 4, all of whom passed. Six candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
College of Phys. and Surgs., San Francisco	(1911)	82.1
College of Phys. and Surgs., Boston	(1906)	71.6*
Ensworth Medical College	(1905)	79.3
University of Bern, Switzerland	(1886)	82.6

* Credit allowed for years of practice.

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Denver and Gross College of Medicine	(1904)	Colorado
Chicago College of Med. and Surg.	(1913)	Illinois
Rush Medical College	(1912)	Illinois
Detroit College of Medicine	(1913)	Michigan
Barnes Medical College	(1907)	Illinois
John A. Creighton Medical College	(1908)	Nebraska

Maryland Homeopathic December Report

Dr. O. N. Duvall, secretary of the Maryland Homeopathic Board of Medical Examiners, reports the written examination held at Baltimore, Dec. 14-15, 1914. The total number of subjects examined in was 8; total number of questions asked, 80; percentage required to pass, 75. One candidate, a graduate of Hahnemann Medical College and Hospital, Philadelphia, 1914, was examined and passed with a grade of 82.

Book Notices

DIGEST OF COMMENTS ON THE PHARMACOPEIA OF THE UNITED STATES OF AMERICA (EIGHTH DECENNIAL REVISION) AND ON THE NATIONAL FORMULARY (THIRD REVISION) FOR THE YEAR ENDING DEC. 31, 1913. By Murray Galt Motter and Martin I. Wilbert. Paper. Pp. 518. Hygienic Laboratory Bulletin No. 98. Washington: Government Printing Office, 1914.

This, the ninth in the present series of digests, reflects a growing interest on the part of medical practitioners in official standards for drugs and preparations. The quotations and the references to medical journals appear to be more numerous than in previous numbers of the same series, and under the several headings "Biologic Products," "Enzymes," "Organo-Therapy," "Serums and Vaccines," "Biologic Methods and Tests," "Disinfectants" and "Clinical Tests," the active medical practitioner will find numerous and comprehensive references to literature on subjects of direct interest to him in his everyday work. Under the heading "A Limited Materia Medica" will be found a number of references which reflect the growing sentiment in favor of a thorough knowledge of the possibilities and limitations of a few drugs rather than a smattering of information on a great number of complex preparations regarding which no really authoritative data are to be had. Several pages are devoted to the enumeration of references concerning forms of administration and methods of administration, and in connection with a review on the general subject of alkaloids there will be found a table showing the influence of heat on solutions of alkaloids and their derivatives. The greater portion of the bulletin (366 pages) is devoted to a detailed review of the literature relating to the officially recognized drugs and preparations. Physiologic and therapeutic action and uses, toxic properties and the by-effects of drugs are referred to at length. The results of analyses in published reports of state food and drug officials, or officials entrusted with the enforcement of state food and drug laws, indicate that general conditions in the drug trade are as yet far from satisfactory, many of the more widely used drugs and preparations are frequently found to be of inferior quality, and the resolution adopted by the American Medical Association at its meeting in Minneapolis in 1913, urging on federal and state officials the need for more energetic and effective action in their efforts to eliminate drugs and preparations that are unreliable through carelessness, negligence, ignorance or other reasons, might well be again brought to the attention of federal and state officials for their consideration. Altogether it may be said that the bulletin reflects a fairly complete and comprehensive index of the literature relating to the origin, composition and uses of drugs and medicines, and is a contribution of value to efforts designed to bring about a broader and more comprehensive knowledge of the materials used as medicine. The volume should prove an incentive to the critical study of the possibilities and limitations of the available materia medica with the view of eliminating from the armamentarium of the physician all articles regarding the use or usefulness of which he may reasonably be in doubt.

THE SCIENCE AND PRACTICE OF DENTAL SURGERY. Edited by Norman G. Bennett, M.A., M.B., B.C., Dental Surgeon to St. George's Hospital, with an Appendix on Dental Jurisprudence by P. B. Henderson, B.A. Cloth. Price, $9 net. Pp. 797, with 993 illustrations. New York: William Wood & Co., 1914.

This work is one of the most important English contributions to the literature of dentistry. It was evidently planned as a collaboration which should embrace the entire field of dentistry by English writers of note, who would present the most reliable views on the various subjects. Most of the contributors seem to have made extensive and impartial search for the more important facts developed by writers and investigators in the dental field. The editor, Mr. Bennett, has probably succeeded as well as any man could in his attempt to "impart unity of conception and style" to the writings of thirty-three other contributors. The one advan-

tage in a compilation of this kind is that it represents the views of many men, often the opposing views of several men on the same subject. There is the objection, however, that in attempting to cover so large a field, general statements must too often stand without sufficient reports of investigation and induction. While this work presents in a single volume, in concise form, the more important facts, its greatest value would appear to be in the considerable number of well-selected bibliographic references which are appended to almost every chapter. References to these are given by number in the text, and this arrangement can hardly fail to lead the reader into a more extended study through the references. Only those writings which are referred to in the text are listed. In this feature, this work excels all other similar publications. The dental profession of America has cause to feel proud of the numerous references to American writings. It is also pleasant to note the general spirit of fairness in giving credit to men whose views are not in agreement. There are frequent references to German and French authors, showing the wide search which has been made in the preparation of the text. Like most books of this type, this work is not very well balanced, either in the space devoted to various subjects or in the relative prominence given them. More than one-fourth of the book, 209 pages, is concerned with the abnormalities of position of the teeth, while the etiology and pathology of dental caries has twenty-two pages, the diseases of the peridental membrane twenty-six pages, diseases of the dental pulp and alveolar abscess thirty-nine pages. Dental caries and the diseases of the peridental membrane, conditions which are most widespread and are causing the greatest destruction in the number of teeth lost, seem to be entitled to more extended consideration. In the elaborate discussion of irregularities we see the tendency of the specialist to make his field the hub instead of one of the spokes in the wheel. The illustrations have been collected from many sources, and most of them have been well chosen and faithfully reproduced.

THE DIAGNOSTICS AND TREATMENT OF TROPICAL DISEASES. By E. R. Stitt, A.B., Ph.G., M.D., Medical Director, U. S. Navy. Cloth. Price, $3 net. Pp. 421, with 86 illustrations. Philadelphia: P. Blakiston's Son & Co., 1914.

This book was at first intended as a laboratory guide; but, inasmuch as purely laboratory diagnosis of tropical diseases is impracticable, it has been extended into a reasonably complete, although concise, treatment of the infections usually included under the head of tropical diseases. The first part of the book is devoted to a clinical description of these diseases. The second is a laboratory guide for the examinations of the different morbid products from which the diagnosis must be made. The examinations are restricted mainly to those methods which are likely to be used in the examination of tropical patients. Altogether, the work appears to be concise without any loss of reliability. The illustrations are fairly numerous, and have been chosen evidently for their value as illustrating the subject. The book ought to be found useful not only by the student, but also by the practitioner. It must be remembered that in view of the wide latitude over which our country extends, and of its foreign possessions and the frequent migrations, no medical man is free from the liability of meeting a case of disease usually regarded as peculiar to the tropics.

A SYSTEM OF OPERATIVE SURGERY. By Various Authors. Edited by F. F. Burghard, M.S., F.R.C.S., Lecturer on Surgery, King's College Hospital. Second edition. Five volumes. Cloth. Price, $30. New York: Oxford University Press, 1914.

Numerous advances made in surgery during recent years have necessitated a new rewritten and revised edition of this well-known British surgical work. Each of the five volumes takes up several fields of surgery, the various sections being written by different authors. On the whole, the system probably represents adequately modern English surgical opinion. As a general criticism might be stated the fact that in some portions the material is merely outline—a skeleton of the procedures. Each operative procedure is taken up under three headings: indications, operation and after-treatment, and in some places special difficulties and end-results are also considered separately. The work of American surgeons, as it has been published in American text-books and surgical periodicals, is frequently quoted. In Volume I are included general principles and technic, local analgesia, amputations, blood-vessel, nerve, muscle and tendon surgery, and the non-tuberculous affections of bones and joints. Volume II considers the tuberculous affections of bones and joints, harelip, cleft palate, cancer of the face and lips, surgery of the jaws, esophagus, tongue and stomach, and includes a good article on hernia. There is a conspicuous absence of the padding so often found in composite works. Volume III takes up the operations on the ductless glands, bile passages, and pancreas of the central nervous system, genito-urinary organs, and the thorax and its contents. In Volume IV the intricate operations of the ear and sinuses are elaborately portrayed, and in Volume V gynecologic operations are considered in a manner probably not better given elsewhere. The authorities who have combined to make this exceedingly valuable work include such men as Legg, Stiles, Moynihan, Mayo-Robson, Godlee, Bland-Sutton, Jellett and others. The work is beautifully illustrated throughout, and the editing of Burghard has made this set a finished and admirable work.

THE POCKET FORMULARY FOR THE TREATMENT OF DISEASE IN CHILDREN. By Ludwig Freyberger, J.P., M.D., M.R.C.P. Fourth edition, with an Appendix on Poisons, Their Symptoms and Treatment. Leather. Price, $2. Pp. 260. New York: Rebman Company, 1914.

We are told that this formulary has been out of print for some time, although this is the fourth edition, revised and enlarged. The question is at once raised in one's mind whether the continuance of such formularies is desirable. It is to be hoped that the day of complicated formulas containing five active ingredients is practically past. On the other hand, a knowledge of how to employ simple remedies ought surely to be one of the conditions for the license to practice medicine. If we remove these two features, the book is reduced to a list of remedies with their properties, dosage, etc., which would occupy considerably less space, and would be helpful in emergencies to the average practitioner. Some features of the book are very commendable. The drugs with which the author has had personal experience in the treatment of diseases of children are spoken of "as very useful" or "as useful" in the paragraph devoted to therapeutics; those as to the usefulness of which he had to rely on the experience of other physicians, the author has said are "recommended" for the treatment of certain diseases. This distinction between personal experience and hearsay evidence might be profitably made by other teachers on therapeutics. The appendix contains a number of useful features, such as preparations suitable for baths, gargles, hypodermic injections, inhalations, sprays, etc. Von Pirquet's and other cutaneous tests for tuberculosis are described, as well as an outline of tuberculin treatment. Unusual with an English book, it contains no proprietaries.

MEATLESS COOKERY. With Special Reference to Diet for Heart Disease, Blood-Pressure and Auto-Intoxication. Compiled by Maria McIlvaine Gillmore. Introduction by Louis Faugeres Bishop, M.D., Clinical Professor of Heart and Circulatory Diseases, Fordham University. Cloth. Price, $2 net. Pp. 352. New York: E. P. Dutton & Co., 1914.

This book contains a complete series of attractive menus and recipes selected apparently with reference to their uses in cases of heart disease, blood pressure and "auto-intoxication." It is these diseases, the author believes, in which rich foods are especially offensive, and she places foods among the main causes of the neuroses and various intoxications consequent on the present day mode of living. The book not only is the outcome of her own experience in hospital cooking, but also contains the suggestions of patients and various experts consulted. The recipes are wholesome, nutritious, and not of the delicate type or fancy order usually found in meatless cook books. A few recipes for the use of chicken and egg are added in case heavier diets may be required.

Medicolegal

Effect of Contracts with Physicians to Furnish Medicines and Attend the Poor

(Johnson vs. Hamilton County (Ia.), 149 N. W. R. 639)

The Supreme Court of Iowa affirms a judgment in favor of the county, which was sued for $111.10 for medicines and medical supplies furnished an indigent person on the verbal order of the trustees. The court holds that the fact that physicians were employed to furnish medical attendance, medicines, etc., for the poor during the entire time of this account was, under the statutes and prior decisions, decisive of the question, and that the trustees could not ignore such employment. It has been held that the liability of the defendant must be fixed by the statute, or it does not exist, and that, when the board of supervisors have employed physicians to render medical aid and furnish medicines for the poor of the county, the trustees cannot disregard such employment by the employment of some other persons to furnish such medicines, and thereby render the county liable. It was conceded on the trial that these physicians did not give a bond, as required by the statute, and it was claimed by the plaintiff that there was no evidence that the contracts were let under competitive bidding to the lowest bidder. However, it has been recently held that, notwithstanding such fact, the contracts are not invalid, but are binding and in force. The bond required is to secure the faithful performance of the contract. The court thinks this bond is for the purpose of protecting the county in the event of failure of the contracting physician to perform the contract, and is not to protect the person furnishing medicines. It was said that one of the physicians was insolvent and unable to furnish the medicine. But the evidence did not show that any demand was ever made on him to furnish such medicines. The plaintiff furnished the medicines and supplies on the order of the trustees, when, at the same time, the county had a contract with physicians to furnish them. The trustees might not ignore the contract. Without now deciding the point, the court may say there might be a case of emergency, where the county physician is not accessible, when the trustees might employ a physician. To do so would open the door to abuses.

Proof of Mental Feelings Just Prior to Accident—Popularity of Physician

(Sanders vs. Boston & Maine Railroad (N. H.), 92 Atl. R. 546)

The Supreme Court of New Hampshire affirms a judgment for $15,000 damages in favor of the plaintiff, a physician, who was injured by a collision of one of the defendant's trains with a carriage in which he was riding. The court says that the plaintiff was asked on direct examination what his feelings were when he saw the train about to smash into his carriage. He answered: "My first thought was—when I saw I could not escape in spite of my efforts, the horrible thought flashed into my mind, 'My wife and daughter!' just the instant before I went unconscious, and after I tried my best to escape and found it impossible." It could not be said that the plaintiff's method of describing his mental suffering was improper, nor that the testimony was incompetent in substance. If the negligence of the defendant caused the plaintiff mental suffering preceding the injury, he was entitled to compensation therefor. It was therefore competent for the plaintiff to describe his mental feeling just as the accident took place, and the words he used to do so indicated that he thought he would be separated from his wife and daughter in an instant by death, to him a horrible thought, giving him great anguish of mind. The testimony described the special mental suffering that the plaintiff experienced at the time of the collision and was competent. The cases cited by the defendant, in which evidence of mental suffering was excluded, were mostly those where plaintiffs experienced such suffering after the injury, in contemplating their own condition, or the difficult position in which their families were placed, and were not like the case at bar. Nor was counsel's statement to the jury that the plaintiff was a popular man improper. Any argument, warranted by the evidence, that bears on the question of damages, is legitimate. The plaintiff's popularity as a man affected his earning capacity, and was therefore material. It was intimated by the defendant that it would have been legitimate to have argued that the plaintiff was a popular physician, if there had been evidence of it. Unquestionably that would have been so, and a stronger argument; but it does not follow that it was not also competent to state that the plaintiff was a popular man. Such a man has many friends, and, if engaged in a profession, attracts business. Popularity is one of the elements of success. It is a matter of common knowledge that many professional men of very mediocre ability and attainments do a large and lucrative business by reason of their popularity; and there is no doubt that much of their business comes to them, not by virtue of the professional standing, but because they are popular men in the community. The defendant cited many cases to show that character evidence is not admissible on the question of damages. This is true, except in cases where character is directly in issue. But here the court is not considering evidence and argument bearing on the character of the plaintiff, whether he was a normal man, but concerning a distinguishing trait or characteristic of the man, affecting his earning capacity.

Law Governing Conspiring of Inmate of Insane Asylum to Escape

(Drew vs. Thaw (U. S.), 35 Sup. Ct. R. 137)

The Supreme Court of the United States reverses an order discharging Thaw on habeas corpus while held in New Hampshire on a warrant from the governor for his extradition to New York, where he was indicted for having conspired with certain persons to procure his escape from the Matteawan State Hospital for the Insane, and having escaped, to the obstruction of justice and of the due administration of the laws. The court says that it was suggested that it was not a crime for a man confined in an insane asylum to walk out if he could, and that therefore a conspiracy to do it could not stand in any worse case. But that depends on the statute. If the acts conspired for tend to obstruct the due administration of the laws, the New York statute makes the conspiracy criminal whether the acts themselves are so or not. The court does not regard it as open to debate that the withdrawal, by connivance, of a man from an insane asylum, to which he had been committed as Thaw was, did tend to obstruct the due administration of the law. At least, the New York courts may so decide. Therefore the indictment charged a crime. The most serious argument on behalf of Thaw was that if he was insane when he contrived his escape, he could not be guilty of crime, while if he was not insane, he was entitled to be discharged; and that his confinement and other facts scattered through the record required the court to assume that he was insane. But this was not Thaw's trial. Even if it be true that the argument stated offered a nice question, it was a question as to the law of New York which the New York courts must decide. The statute that declares an act done by a lunatic not a crime adds that a person is not excused from criminal liability except on proof that at the time "he was laboring under such defect of reason as: 1, not to know the nature and quality of the act he was doing; or 2, not to know that the act was wrong." The inmates of lunatic asylums are largely governed, it has been remarked, by appeal to the same motives that govern other men, and it well might be that a man who was insane and dangerous, nevertheless in many directions understood the nature and quality of his acts as well, and was as open to be affected by the motives of the criminal law as anybody else. How far such considerations shall be taken into account it is for the New York courts to decide, as it is for a New York jury to determine whether, at the moment of the conspiracy, Thaw was insane in such sense as they may be instructed would make the fact a defense.

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Society Proceedings

NORTH SIDE BRANCH OF THE CHICAGO MEDICAL SOCIETY

Meeting held Jan. 15, 1915

The President, DR. F. A. JEFFERSON, in the Chair

Trifacial Neuralgia and Its Treatment

DR. HUGH T. PATRICK: The striking characteristic which distinguishes trifacial neuralgia from almost all other pains about the head and face is the brevity of the pain. Another strongly diagnostic characteristic is that the pain may be started by slight peripheral irritations about the face, by eating, talking, drinking, brushing the teeth, washing the face, and so forth. It is a very rare case in which one cannot start the pain by taking a wisp of cotton and making a light wipe over the face. Another peculiarity about the starting of the pain is that an irritation in the distribution of one of the three branches of the trifacial may start the pain in another branch. I have called these areas from which pain may easily be started "trigger zones." There is no known definite cause of trifacial neuralgia. I am certain that arteriosclerosis and degenerative changes are not causative, and that it is not caused by anything like auto-intoxication, but I could not prove the latter statement. I have never found Bright's disease, diabetes, alcoholism or metallic poisoning to have any particular influence on the condition. Local infections and irritations in the area of the fifth nerve may have something to do in originating the disease. The proportion of my cases which gave a history of or had at the time of examination sinus disease or pyorrhea or a bad tooth, suppurating at the root, etc., is rather high, but I have never known a case to be cured by the removal of the teeth. Trifacial neuralgia is a distinct clinic entity. The pathology is unknown. Some think it is due to changes in the cells of the gasserian ganglion, but there is nothing to support that opinion. The prognosis is bad.

Medicinal treatment is not altogether ineffective. I have known of very good effects from heroic doses of aconitin, but this has to be given with care. The castor oil treatment is sometimes effective, but not often. Some cases have been treated by attending to anomalies of the eyes; some by taking spurs off the septum and pieces off the turbinates, but these treatments are always without permanent effect, in my experience. Really, the treatment of trifacial neuralgia is operative. The best operation, of course, is the radical removal of the gasserian ganglion, or section of the sensory root between the ganglion and pons, which is equally effective. But this is a very serious and difficult operation, and requires a refined technic. Even in the hands of some good general surgeons, the mortality runs as high as 10 per cent. and over. In the hands of experts it is not over 1 per cent. That, however, is the only operation that can be depended on to cure. A number of peripheral operations have been advocated, including the Abbé—section of the nerves at the base of the skull, with interposition of some substance to prevent the ends of the nerve from uniting, which is generally futile, but probably the best of the peripheral methods. It, too, is a difficult operation to perform. Some men advocate division of the nerves in the jaw, or at their exit, and pulling out as much as possible, but after nearly all these operations, the nerves regenerate and the pain returns.

There are several methods of alcohol injections for the treatment of trifacial neuralgia, that of Schlösser and that of Haertel, but, for the greater part, I have followed the method of Lévy and Baudouin, in which a straight needle is used, the point of entrance being at the lower border of the zygoma, relatively far forward for the middle branch, and farther back for the inferior branch. Injection of the first branch is done at the supra-orbital notch with a long hypodermic needle. Lately I have been using a very slender iridoplatinum needle, as advised by Brissaud and Sicard. With this needle the puncture is less painful, and penetration much easier, but once introduced, the needle is much less easily manipulated than the heavier one. All methods are uncertain as regards the accuracy with which the operator can put the needle into the nerve, and this uncertainty is the greatest objection to this treatment. When the injection is properly done, the dangers are practically nil. I have heard of one case in which a very considerable slough followed the injection, but I have never heard of a fatality. In accordance with the uncertainty of reaching the nerve, the results may be said to be exceedingly variable. If injection is made accurately into the nerve, the patient always has relief for at least a year, and in many cases for three or four years. If the alcohol is placed only alongside the nerve, the relief is short-lived. My own opinion is that young persons with this disease should have the radical operation done by one of the few surgeons with extensive experience with this operation. Old persons or those with some grave physical disease would better have the alcohol injections, because by this means, without risk, they may be kept comfortable as long as they live.

DISCUSSION

DR. F. B. MOOREHEAD: There are two or three things I wish to emphasize: first, the percentage of cases due to lesions in or about the jaws. I have never seen a case of trifacial neuralgia that was due to a demonstrable lesion of any sort. I have seen cases in which one tooth after another was removed, after each extraction there seeming to be a cessation of the pain, only to return again. I have never seen a case that gave any improvement whatever from the removal even of unerupted teeth, when it was a case of typical classic trifacial neuralgia. I have done a number of peripheral operations, some of which have done some good, and a number did not do very much good. The peripheral operation is absolutely to be condemned, because at most there will be a short period of relief from pain, and the chances are that when it recurs it will be worse than before, because in regenerated nerves there seems to be more irritability than before the nerve was excised. It is possible to do an operation which is exceedingly simple on the third branch, which I believe at present gives splendid hope of good results, and that is, with an incision not over an inch in length, made just at the shadow line in the region of the facial artery. One can easily go through transversely, find the canal in the lower jaw, and then it is a simple matter to work forward until the mental foramen is reached; then work back as far as possible and lift the nerve out of its bed completely. Then by avulsion the peripheral branch is removed. Then, by taking an instrument devised for the purpose, you can go backward and remove the entire nerve from the bony structure. If any of the nerve is left in the canal, it will be certain to regenerate, but with this simple operation thoroughly performed, it is possible to remove the third branch from the jaw completely. But when all is said and done, and the treatment of trifacial neuralgia is reviewed, alcohol injection is the best because it is simple, is not accompanied by any danger to the patient, can be done in the office, and is not especially painful.

Recent Methods of Treating Syphilis of the Nervous System

DR. HAROLD N. MOYER: So far as one can judge at this time, neosalvarsan is far less dangerous than salvarsan, but not to be compared with it in efficacy. It was natural that the inefficiency of salvarsan in nervous syphilis should have led to investigations which resulted in the introduction of salvarsanized serum into the spinal theca. The intraspinal method in its various modifications can be credited with results not heretofore obtained in the use of salvarsan in nervous syphilis. Presumably the active constituent of salvarsan is arsenic, which is of known value in malarial and trypanosome infections, a class of organisms to which the *Treponema pallidum* belongs. As a means of introducing arsenic into the system it is inferior to older methods; it involves far more discomfort, and its dangers are by no means slight. I began experimenting with arsenic in the

late eighties, and was early impressed with the fact that this substance is stored in the liver in larger quantity than in any other organ. It occurred to me that it would be therapeutically more efficient if introduced under the skin, to be absorbed by the general circulation, and in this way its effect on the nervous system would be greater. I have now used arsenic in the treatment of nervous syphilis for ten or twelve years, associated with the ordinary mercurial treatment, and have found this combination very effective. I use the arsenic in the form of sodium arsenate, which I believe to be the most valuable form of arsenic for the treatment of syphilis of the nervous system. Next comes salvarsan, in my opinion, and the least valuable form is sodium cacodylate. My first injections into the spine were given for the purpose of overcoming tabetic crises and pains, particularly the latter, and I used sodium cacodylate at that time, about eight or nine years ago. Later I changed to sodium arsenate injections into the spinal canal, and so far as I know without the slightest untoward result in any case. Some men, I believe, now inject small quantities of salvarsan into the spinal canal. I see no advantage in this, and I cannot see that the results are any better than those I get from the injection of sodium arsenate into the spinal canal. However, I have not injected it into the spinal canal for several years. Not that I would hesitate to do it in appropriate cases, but I believe practically the same results can be obtained by the persistent use of arsenic under the skin. I am an enthusiastic believer in the arsenic treatment of nervous syphilis as an adjuvant and associated with the mercurial treatment, with the occasional use of iodids. I do not believe in the value of salvarsan as compared with other forms of arsenic, particularly sodium arsenate, and for that reason do not use it in syphilis of the nervous system.

DISCUSSION

DR. GEORGE W. HALL: Like Dr. Moyer, I am rather an enthusiast over the use of arsenic, but, unlike him, I am a strong adherent to the use of neosalvarsan in the treatment of syphilis. My work has been more especially along the line of intraspinal injections. I have made about fifty such injections of neosalvarsan, both in private work and at the Cook County Hospital. We withdraw from 16 to 18 c.c. of spinal fluid if possible. We never make an injection of 3 or more milligrams without the use of 16 c.c. of spinal fluid as the vehicle. I think unfortunate results have been due to the use of more concentrated solutions. We use freshly boiled distilled water as a solvent for the neosalvarsan in such dilution that 1 minim contains the required dose. We began this form of medication about a year ago, and in some instances have obtained very good results—whether permanent or not, I am not willing to say. In the meningitic cases we get better results than in the cases of arterial involvement of the central nervous system. In the early tabes cases we have had apparently good results by reduction of pain. Of course, the cases should be chosen carefully for intraspinal medication, just as we choose them for other methods of treatment. Men who are especially addicted to the use of alcohol should not be subjected to this treatment. Also, there is a good deal in the method of injection used. Sometimes the injection is made too high, and fluid is reinjected perhaps too rapidly. Sometimes it comes in contact with the nerves at the end of the cord in too concentrated solution, and in that way produces the bad results which we occasionally see reported. In other instances slight inflection follows the injection. Care should also be taken that the fluid injected should be near the body temperature—neither hot nor cold. In cases of general paresis I believe the intraspinal injections are of no importance whatever. Once in a while, however, we meet patients who have an idiosyncrasy toward this form of medication—either intraspinally or intravenously. The kidneys must be watched when neosalvarsan is used intravenously. We should not expect permanent results after two or three injections any more than we should expect to cure malaria with three doses of quinin. We should not stop at the third or fourth injection, but give five, or seven, or even eight injections, if necessary, if the patient can stand it, and along with these injections continue with the other treatment outlined, at the same time making occasional examinations of the spinal fluid, Wassermann tests, etc.

DR. HUGH T. PATRICK: We should be a little cautious in giving these injections, and watch the knee jerks all the time. If they weaken, the injections should be stopped at once. It is possible to produce a typical arsenical multiple neuritis. Recently I have been having a most distressing experience from the results of intravenous injections of neosalvarsan in the form of a marked dermatitis, which is exceedingly rare.

DR. HAROLD N. MOYER: One must realize, when dealing with arsenic—whether in the form of salvarsan, neosalvarsan or the sodium arsenate—that he is dealing with a dangerous and toxic remedy. Many cases of arsenical neuritis following the use of Fowler's solution have come under my observation. The reason I have not found it necessary to use the injections into the spinal canal is that with the persistent, insistent, steady use of sodium arsenate I can apparently get enough absorbed by giving it under the skin. You must be persistent in the treatment, whether with neosalvarsan or sodium arsenate, but that also can be overdone. Go as far as the remedy will be tolerated. After reading the literature, and reviewing my own experience, my judgment is that salvarsan is a form of arsenical medication. If I am wrong, then this whole thesis falls. If I am right, then I believe my form of arsenical medication is better than salvarsan, more manageable, more efficient, and safer.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Orthopedic Surgery, Philadelphia

January, XII, No. 3, pp. 379-553

1 *Nearthrosis or Arthroplasty. A. H. Tubby, London.
2 Study of Scope and Efficiency of Large Orthopedic Clinic. H. C. Low, Boston.
3 Supernumerary Bones of Foot—Roentgen Study of Feet of One Hundred Normal Individuals. E. S. Geist, Minneapolis.
4 *Use of Silk Ligaments at Ankle in Infantile Paralysis. R. W. Lovett, Boston.
5 Arthrodesis in Treatment of Lateral Deformity of Foot. R. E. Soule, New York.
6 *Mechanical and Operative Treatment of Poliomyelitis Anterior. P. W. Nathan, New York.
7 Case of Subacromial Bursitis, with Production of Lime in Bursa. L. W. Ely, San Francisco.
8 Air Embolus as Cause for Sudden Death in Subcutaneous Tenotomy for Relief of Congenital Wry Neck. W. G. Stern, Cleveland.
9 Congenital Defects of Tibia and Fibula. F. J. Gaenslen, Milwaukee, Wis.
10 Symmetrical Development Defects of Fourth Metacarpal. H. F. Day, Boston.
11 Cases of Rheumatic Arthritis Treated by Extract of Pituitary Body. B. H. Whitbeck, New York.
12 *Phenol Injection Treatment of Infected Joints. S. M. Cone, Baltimore.

1. **Nearthrosis or Arthroplasty.**—Before operating for the relief of an ankylosis, Tubby says, it is requisite to ascertain if the cause which has given rise to ankylosis is in abeyance at the time of the suggested operation, and if it has been in abeyance for some years. More particularly does this apply to tuberculosis. Old foci may be opened up, or they may be so extensive as to prevent reformation of the ends of the bones in the way desired. Tubby cites seven cases and expresses himself as being far from optimistic with regard to the future of nearthrosis by the interposition methods. In his cases in which some success was attained, cargile membrane or chromicized peritoneum was used. It seems to him that muscular fibers or fibers composed of fascia and adipose tissue; or failing them, chromicized cargile membrane or pig's bladder, are the best material so far in use. He further says that he had noted, if the extensor tendon be partly divided at the time of operation, the patient suffered little or no pain.

4. Silk Ligaments at Ankle in Infantile Paralysis.—Of seventy-nine operations performed by six operators on sixty-eight patients, fifty-one were periosteal insertions, and twenty, bone, while in eight it was not stated whether the bone or periosteal method was used. Of forty-four periosteal operations in which the result could be verified, 30 per cent. (13 cases) were successful; 20 per cent. (9 cases) were partially successful; 50 per cent. (22 cases) were failures. Of seventeen bone drill operations in which the result could be verified, 70 per cent. (12 cases) were successful; 12 per cent. (2 cases) were partially successful; 17 per cent. (3 cases) were failures. Lovett's belief, from the examination of these cases and from a study of their records combined with his clinical experience, is that the silk ligament operation in cases of dropped ankle from infantile paralysis is a useful operation attended by a good proportion of success; that a most rigid technic is necessary, and that the especial preparation of silk used is not what determines the outcome; that prolonged fixation and support are necessary, because the silk is not strong enough of itself to hold up the foot, but serves as the core of a ligament which is the real supporting structure.

6. Surgical Treatment of Poliomyelitis Anterior.—The more or less widespread tendency to perform ankylosing operations in poliomyelitis anterior is deprecated by Nathan. This applies particularly to the knee and shoulder joints. Whatever may be the case so far as the shoulder is concerned, he cannot see why a patient who wears a brace with a snap joint at the knee, is not better off than one with a perfectly stiff knee. He urges that the operative treatment of poliomyelitis anterior depends on and should be planned according to definite mechanical principles. It is not sufficient that the muscle whose tendon is to be transferred is physiologically intact; it must approximate in power (which can readily be determined), the force which it is to balance or overcome. The course must correspond, mathematically, with the direction in which the force to be transferred is to act, and the site of the implantation must be such that the greatest possible leverage may be obtained. Finally, in computing the resultant of the muscular forces, one should also more carefully consider the increased power to be gained by shifting the relative positions of the bones which make up the articulations, thus rearranging the lever arms and, in consequence, the balancing forces.

12. Phenol Injection Treatment of Infected Joints.—Cone has treated three cases of hydrops articuli with phenol followed by alcohol. The first case treated in 1904 had both knees involved. In this case he used 5 drops of pure phenol followed by 10 drops of alcohol. The patient, an old man, left the hospital in three weeks, all the effusion having disappeared. The last patient was treated in March, 1914; she had hydrops articuli of the right knee, and psoriasis. In this case Cone injected 10 drops of 5 per cent. phenol, followed by alcohol and in two weeks the swelling had disappeared. Of ten cases of gonorrheal joints with little pus formation and in which the diplococci were demonstrated, all were benefited; in two the pain was relieved after the first injection (5 per cent. phenol followed by alcohol), no further injection being required. In the other two or three injections were made before complete relief was afforded.

In five cases in which there was considerable distention of the joint, operation was required before complete relief was given. One of these recovered with a movable joint, walking five weeks after operation. In one case a staphylococcus infection of the elbow, referred after all palliative measures had been used with no relief of swelling or pain, one injection of 5 per cent. phenol followed by alcohol relieved the pain at once and in three days all swelling had disappeared, the patient going to work in a week. In three cases of villous arthritis there were no good results.

One patient with tuberculosis of the knee joint, in which tubercle bacilli were demonstrated, was using his knee with protection three months after two injections of 5 per cent. phenol and alcohol. He reported three years later perfectly well. One patient with an old tuberculous knee with dislocated patella, received two injections and three months later was not complaining of stiffness or swelling of the joint. Two cases of tuberculosis of the knee which were injected required subsequent incision but healed nicely three months after simple incision and drainage. In two cases, one streptococcal the other staphylococcal arthritis of the knee, they injected three times before very extensive operation, with prompt healing. One case of congenital syphilis of the knee joints in a boy of 16 years was not improved by the injections, but got well at once after one injection of ¼ grain of mercury biniodid in oil. Other cases of syphilis proved unresponsive to the phenol. In a case of obstinate sacroiliac joint trouble the injection of 5 drops of pure phenol followed by alcohol relieved the symptoms in a few weeks by locking the joint. This ankylosis was demonstrated a year later by roentgenogram. From the results of treatment by this method it would seem that the method is most reliable in all cases in which there has been no disorganization of the joint and the case is treated before extensive pus formation.

American Journal of Physiology, Baltimore

January, XXXVI, No 2, pp. 77-238

13 *Studies on Cerebrospinal Fluid. Effect of Pituitary Extract on Its Secretion (Choroidorrhea). L. H. Weed and H. Cushing, Boston.
14 *Blood-Pressure During Vomiting. C. Brooks and A. B. Luckhardt, Chicago.
15 *Effect of Thyroid Extracts on Blood-Pressure. G. G. Fawcett, J. Rogers, J. M. Rahe and S. P. Beebe, New York.
16 *Influence of Oxalates, Citrates and Tartrates on Isolated Heart. W. Salant and S. Hecht, Washington, D. C.
17 Autolysis and Involution. M. Morse, Madison, Wis.
18 *Physiology of Stomach. Sensibility of Gastric Mucosa. A. J. Carlson and L. H. Braasladt, Chicago.
19 Variations in Irritability of Reflex Arc under Strychnin. E. L. Porter, Boston.
20 *Physiology of Stomach. Contractions of Rabbit's Stomach During Hunger. F. T. Rogers, Chicago.
21 *Id. Reflexes from Intestinal Mucosa to Stomach. E. H. Bruenemeier and A. J. Carlson, Chicago.
22 Physiology of Cuvierian Organs of Holothuria Captiva Ludw. W. J. Crozier, Boston.
23 *Vasomotor Nerves of Duodenum. R. Burton-Opitz, New York.
24 Body Surface of Flounders and Its Relation to Gaseous Metabolism. S. Morgulis, New York.
25 *Influence of Pregnancy on Hyperglycemia of Pancreatic Diabetes. A. J. Carlson and H. Ginsburg, Chicago.
26 Validity of Inductorium Calibrations. E. G. Martin, Boston.

13. Effect of Pituitary Extract on Secretion of Cerebrospinal Fluid.—Extracts of the posterior lobe of the hypophysis introduced intravenously by Weed and Cushing served to discharge cerebrospinal fluid from a calibrated catheter introduced in its pathway (ventricle or subarachnoid cistern). Positive responses occurred to the injection of nearly all the fluid proprietary preparations, though in the authors' hands the desiccated extracts have proved to be the more active. The possible increment to the fluid through increased permeability of the cerebral capillaries and drainage out along the perivascular lymphatics was excluded in most of their experiments by the method of tapping the fluid pathway in the third ventricle rather than in the cisterna magna. The response occurred under most variable conditions and appeared to be independent of respiratory influences or hemodynamic reactions, for it may coincide with periods of respiratory cessation or acceleration or with periods of arterial hypertension or depression. A prolonged flow from the ventricle may continue even after death and may reach an amount apparently in excess of the normal content of the ventricles. That there is an actual increase in the amount of fluid secretion was shown by its non-recession into the cannula following periods of increased cerebral vascularity, as well as by the measurement of the amounts discharged. The evidence inclines Weed and Cushing to believe that the outflow under the circumstances of their experiments represents an actual secretory response rather than an expulsion of preformed fluid due to physical conditions resulting in changes in the volume of the brain. Hence their conclusion may be justified that: Extracts of the posterior lobe of the hypophysis increase the rate of production of cerebrospinal fluid (choroidorrhea) by stimulating the secretory activity of the choroid plexuses.

14. **Blood Pressure During Vomiting.**—According to Brooks and Luckl.ardt their experimental studies showed that vomiting is accompanied by marked changes in the circulatory system and interference with respiration. There is seen, sometimes, a period of elevated pressure, more frequently a sudden and enormous drop in blood pressure with cardiac inhibition at the moment of emesis, always periods of great oscillations in the blood pressure. These great and sudden oscillations of the blood pressure may cause a rupture of the blood vessels which would occur with the same pressure but with slower changes. The faint feeling accompanying emesis may be the result of the cerebral anemia occasioned by the cardio-inhibition and resulting drop in blood pressure.

15. **Effect of Thyroid Extract on Blood Pressure.**—The authors' experiments have been begun with an attempt to isolate from a watery extract of the fresh gland, all of the substances which can be separated, with as little alteration as possible of their chemical structure. These include the so-called nucleoproteins, globulins, coagulable and non-coagulable albumins, and the alcohol soluble and alcohol insoluble residue. Each of these bodies have been dissolved and injected intravenously in dogs, and the results on the blood pressure, respiration and heart action noted in the usual kymograph tracings. The solution of the alcohol soluble residue left after removal of all other substances has been found to be the only substance which produces any appreciable effect on the blood pressure. The glands used throughout these experiments have been pig thyroids. It was found that iodin is present in all the fractions of the extract. The coagulable fractions which are the richest of all the fractions in iodin, produce little or no depressor effect even in relatively enormous dosage. The "residue," or fraction of the extract which remains after the removal of the coagulable fractions, contains iodin, but in smaller quantity than the other fractions. The depressor effect of the "residue" bears no relation to the total iodin content of the gland from which the residue is derived. The depressor effect of the "residue," follows only after its intravenous injection. It is not manifested after subcutaneous injection. Tachycardia is not regularly produced by this depressor substance, although a very large dose (10 c.c.) does accelerate the pulse rate at the lowest points of blood pressure. Later, the force and rate of the heart beat return to normal with the return to normal of the blood pressure. The active portion of the "residue" is not precipitated by basic lead acetate; is not altered by boiling nor by passage through a Berkefeld filter; and is soluble in alcohol. No immunity to the depressor effect of the "residue" or of its active portion was noted during the limit of the experiment (from four to six hours).

16. **Influence of Oxalates, Citrate and Tartrates on Isolated Heart.**—The results obtained by Salant and Hecht show that sodium tartrate is much less active than citrate or oxalate. Equimolecular solutions of the latter, perfused for the same length of time, indicate that sodium citrate may be more toxic than oxalate.

18. **Sensibility of Gastric Mucosa.**—According to Carlson and Braafladt the normal gastric mucosa is devoid of pain and tactile sensibility, but protopathic temperature sensibility is present. Chemical (and possibly mechanical) stimulation of nerve endings in the normal gastric mucosa gives rise to a sensation identical with appetite. The stomach mucosa may be said to be provided with a protopathic appetite sense. The stimulation of the gastric mucosa does not contribute to the sensations of hunger and of fulness. Stimulation of the gastric mucosa increases the reflex excitability of the spinal cord, and induces changes in vasomotor tonus. The latter appears to be dependent on conscious cerebral processes induced by the gastric stimulation.

20. **Hunger Contractions in Stomach of Rabbit.**—During starvation of the rabbit, Rogers states, the stomach activities are augmented and the reflexes acting on the gastric motor mechanism are different from those of normal digestion peristalsis. There are no sharp dividing lines, however, between the normal peristaltic contractions occurring during digestion and those occurring during hunger. It would thus seem that, in the rabbit at least, the gastric hunger contractions are intensified digestive peristalses. The empty stomach of the rabbit shows very strong and rapidly repeated contractions and marked tonus variations. In the hungry rabbit there is a state of increased tonus in the stomach musculature. Tonus changes are more marked and occur more frequently during hunger than during normal digestion peristalsis. The contractions of the stomach occurring during hunger in the rabbit are not inhibited by the sight, smell, taste or chewing of food. The contractions occurring during hunger are inhibited or weakened by the introduction into the stomach of small quantities of water, weak acids, alcohol or sugar solution. Normal peristalsis is not inhibited by the same amounts of these solutions. Excitement (central nervous influences) inhibits the stomach contractions and causes a lowering of the tonus of the stomach musculature.

21. **Reflexes from Intestinal Mucosa to Stomach.**—Brunemeier and Carlson found that gastric juice, chyme, acids, alkalies, water, milk and oil introduced into the small intestine inhibit gastric hunger contractions and gastric tonus for varying periods. This inhibition of these gastric hunger contractions and tonus is due partly to mechanical, partly to chemical stimulation of the intestinal mucosa. The chemical stimulation produces the greater effect. This inhibition of gastric hunger contractions apparently take place primarily by the "long" or central reflex path, but "short" or local reflex paths in Auerbach's plexus are also involved.

23. **Vasomotor Nerves of Duodenum.**—Burton-Opitz concludes that the blood vessels of the duodenum are innervated by nerves which ascend from the celiac ganglion by way of the plexus gastroduodenalis and plexus pancreaticoduodenalis.

25. **Pregnancy and Pancreatic Hyperglycemia.**—Total extirpation of the pancreas in non-pregnant dogs by Carlson and Ginsburg resulted in the onset of pancreatic diabetes within from seven to twelve hours. Complete pancreatectomy in pregnant bitches near term was not followed by hyperglycemia and glycosuria, etc., so long as the fetuses were alive and the placental connections were not severed. At the onset of labor the blood sugar began to rise, so that the hyperglycemia with consequent glycosuria, characteristic of pancreatic as well as severe clinical diabetes was established on the completion of the delivery. This absence of diabetes, the authors state, may be due either to a secretion from the fetal pancreas reaching the maternal blood, or to some detoxicating action on the part of the fetal pancreas.

American Journal of Public Health, Boston

January, V, No. 1, pp. 1-84

27 Efficiency and Economy in Maintenance of Private Agencies Working for Public Health. W. C. Woodward, Washington, D. C.
28 Relation of City to Milk Supply. N. Straus, New York.
29 Coming Movement for Extending Human Life. I. Fisher, New Haven, Conn.
30 Typhoid and Its Sequelae. L. I. Dublin, New York.
31 Campaign Against Quacks. W. A. Evans, Chicago.
32 Cooperation and Coordination of Voluntary Public Health Organizations. F. R. Green, Chicago.
33 Effects on Public Health and Natural Prosperity from Rural Depopulation and Abnormal Increase of Cities. P. H. Bryce, Ottawa, Canada.
34 Use of Microscope in Diagnosis of Pellagra. B. W. Page, Lumberton, N. C.
35 Chemical Disinfection of Excreta. W. Dreyfus, New York.

American Journal of Roentgenology, Detroit

November, II, No. 1, pp. 497-540

36 Negative Diagnosis of Surgical Lesions of Stomach and Cap. L. G. Cole, Ithaca, N. Y.
37 Measurements with Coolidge Tube. J. S. Shearer, Ithaca, N. Y.
38 Case System of Teaching Roentgenology: Consideration of Necessary Relationship of such Teaching to General Medical Education. P. Brown, Boston.
39 *Early Diagnosis of Pulmonary Tuberculosis. F. S. Bissell, Minneapolis, and E. T. F. Richards, St. Paul.
40 Thoracopagus Lateralis. W. A. Quimby, Wheeling, W. Va.
41 Latent Pellagra and Roentgen Ray. G. M. Niles, Atlanta, Ga.

39. Abstracted in THE JOURNAL, Oct. 17, 1914, p. 1420.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

January, II, No. 7, pp. 429-488

42 Occurrence of Yaws in United States. E. J. Wood, Wilmington, N. C.
43 *Ameba Cultivated from Normal Human Intestine. M. Couret, New Orleans.
44 Recent Investigations in Relation to Infectious Diseases in South America. R. P. Strong, Boston.

43. **Ameba from Normal Human Intestine.**—From Curet's study it appears to be well established, that free-living ameba and ameba cultivated from the healthy intestine cannot produce typical amebic lesions in the gastro-intestinal canal or the liver of susceptible animals when introduced in pure cultures or with favorable bacterial symbiosis. When either one or several species of ameba were fed to animals or injected into their rectum with bacterial associations, the results were negative unless the symbiotic microorganism was capable of producing an intestinal upset. When pure cultures were used no results were obtained. Suspensions of one or many species of ameba, either in pure culture or associated with some microorganism, when injected into the liver of animals, failed to show lesions when the bacteria were omitted or were not pathogenic. Positive results were obtained only when the bacterium in symbiosis was pathogenic to the host. In every instance, the lesions when present did not suggest amebic invasion. Negative results followed when the ameba and their symbionts were injected into the liver of an animal previously immunized against the bacterium, although lesions followed the injection of the same ameba with the same symbiont in an animal not protected against the symbiotic organism. Control animals that were fed or injected with the various bacteria used as symbionts, without the ameba, developed the same symptoms, died as frequently and the lesions were similar to those in which the ameba were injected with the special microorganism.

Boston Medical and Surgical Journal

February 4, CLXXII, No. 5, pp. 161-200

45 *Study of Children with Positive Skin Tuberculin Reactions. O. F. Rogers, Jr., Boston.
46 Two Cases of Rupture of Intestine. L. Davis, Boston.
47 Urinary Acidity and Beta-Oxybutyric Acid Determinations in Recurrent Vomiting. Report of Case. W. S. Parker, Boston.
48 *Significance of Roentgen-Ray Examination Following Operation for Congenital Pyloric Tumor. C. L. Scudder, Boston.
49 Some Studies in Fat Indigestion. C. H. Dunn, Boston.
50 Acute and Chronic Empyema. W. Whittemore, Boston.
51 Case of Congenital Multiple Cystic Disease of Kidneys in which One Kidney was Removed. F. S. Watson, Boston.

45. **Children with Positive Skin Tuberculin Reactions.**—Rogers says that, before the age of 2, a positive skin reaction seems to be an indication that the child's life is likely to be short. The mortality among all children, up to the age of 10, who react to the von Pirquet test is much higher than that of normal children.

48. **Roentgen-Ray Examination Following Operation for Pyloric Tumor.**—Three authentic cases are referred to by Scudder in which the pylorus tumor discovered at operation has been seen from three to nine months following a plastic operation. These facts taken with the postoperative Roentgen-ray findings in twenty-six cases recorded, the author believes, afford a reasonable basis for the conclusion that the pyloric tumor persists and does not tend to disappear. The recognition of the persistence of the tumor in congenital pyloric stenosis is important. Scudder says that the tumor alone with the mucous membrane changes is an adequate cause of the obstruction in all its phases, and it is unnecessary to imagine a pyloric spasm associated with the obstructing tumor. The surgical treatment of these cases is, without question, the permanently effective treatment. The postponement of the operation with the idea, now so prevalent, that the hypothetic spasm will let up and the tumor disappear and the child recover is unjustifiable. A baby having tumor obstruction will always have tumor obstruction. The omission of the hypothetic pyloric spasm from any consideration in these cases will result in earlier adequate surgical relief.

Indiana State Medical Association Journal, Fort Wayne

January, VIII, No. 1, pp. 1-62

52 Medicine. G. Van Sweringen, Fort Wayne.
53 Gynecology. O. G. Pfaff, Indianapolis.
54 General Surgery. H. O. Bruggeman, Fort Wayne.
55 Bacteriology and Pathology. H. S. Thurston, Indianapolis.
56 Neurology and Psychiatry. A. E. Sterne, Indianapolis.
57 Pediatrics and Orthopedic Surgery. M. F. Porter, Jr., Fort Wayne.
58 Ophthalmology. J. R. Newcomb, Indianapolis.
59 Otolaryngology. E. M. Shanklin, Hammond.
60 State Board of Health. J. N. Hurty, Indianapolis.
61 Indiana University School of Medicine. C. P. Emerson, Indianapolis.

Iowa State Medical Society Journal, Des Moines

January, V, No. 1, pp. 1-40

62 Diagnosis of Cancer of Intestinal Tract. W. Jepson, Sioux City.
63 Postoperative Ileus. J. R. Guthrie, Dubuque.
64 Austin Flint-Cedar Valley Medical Association. W. F. Cobb, Lyle, Minn.
65 Case of Brain Abscess. L. C. Kern, Waverly.
66 Tetanus, Its Early Recognition and Treatment. R. H. Pyles, Hudson.
67 New Conservative Turbinate Operation. E. P. Weih, Clinton.

Journal of Biological Chemistry, Baltimore

January, XX, No. 1, pp. 1-94

68 Blood Relationship of Animals as Displayed in Composition of Serum Proteins. III. Comparison of Serum of Hen, Turkey, Duck, and Goose with Respect to Their Content of Various Proteins. W. B. Thompson, Los Angeles.
69 Id. IV. Comparison of Serum of Pigeon, Rooster and Guinea Fowl with Respect to Their Content of Various Proteins in Normal and Fasting Condition. R. S. Briggs, Los Angeles.
70 Precipitation of Serum Albumin and Glutin by Alkaloidal Reagents. P. J. Hanzlik, Vienna.
71 Simpler Nucleotides from Yeast Nucleic Acid. W. Jones and A. E. Richards, Baltimore.
72 Studies on Fasting Flounders. S. Morgulis, Woods Hole, Mass.
73 *Examination of Folin-Farmer Method for Colorimetric Estimation of Nitrogen. J. C. Bock and S. R. Benedict, New York.
74 *Method for Estimation of Sugar in Small Quantities of Blood. R. C. Lewis and S. R. Benedict, New York.
75 Synthesis of Hippuric Acid in Experimental Tartrate Nephritis in Rabbit. F. B. Kingsbury and E. T. Bell, Minneapolis.
76 Soluble Polysaccharides of Lower Fungi. III. Influence of Autolysis on Mycodextrin Content of Aspergillus Niger. A. W. Dox, Iowa City, Ia.
77 Case of Lipemia. C. G. Imrie, Toronto.
78 Fibrin. A. W. Bosworth, Boston.

73. **Folin-Farmer Method for Estimation of Nitrogen.**—Analysis by Bock and Benedict of some seventy samples of urine by the Folin-Farmer colorimetric method showed that this method usually agrees with the Kjeldahl method within about 2 or 3 per cent. For the most part the figures by the Folin-Farmer method were appreciably lower than by the Kjeldahl process, but variations occurred between + 4 per cent. and — 11.8 per cent. of the total quantity of nitrogen present. Therefore the Folin-Farmer method is not to be regarded as equivalent to the ordinary Kjeldahl procedure in accuracy or reliability. Two modifications of the Folin-Farmer method are presented, one of which is recommended as of service in blood analysis or in cases in which only small quantities of material are available. The results reported show that the Folin-Farmer method can be employed with advantage in any instances in which the total quantity of nitrogen present is very small (as in the determination of the total non-protein nitrogen of the blood), because a high percentage error is of much less importance in such analyses.

74. **Estimation of Sugar in Blood.**—The red color obtained by heating a dextrose solution with picric acid and sodium carbonate is employed as the basis of the method proposed by Lewis and Benedict for the determination of blood sugar. The blood protein is removed by precipitation with picric acid. The method of blood sugar determination is as follows: Two c.c. of blood are aspirated through a hypodermic needle and piece of rubber tubing into an Ostwald pipet, a little powdered potassium oxalate in the tip of the pipet preventing clotting. The blood is drawn up a little above the mark and the end of the pipet is closed by the finger. After the rubber tubing and needle are disconnected, the blood is allowed to flow back to the mark and is discharged at once into a 25 c.c. volumetric flask containing 5 c.c. of water. The contents of the flask are shaken to insure thorough mixing and the consequent hemolysis of the blood. Then 15 c.c. of saturated aqueous solution of picric acid are added, as

well as a drop or two of alcohol to dispel any foam, and the contents of the flask are made up to the mark with water and then shaken. After filtration 8 c.c. aliquots are measured out into large Jena test tubes for duplicate determinations. Two c.c. of saturated picric acid solution and exactly 1 c.c. of 10 per cent. sodium carbonate are added (as well as two glass beads and 2 or 3 drops of mineral oil), and the contents of the flask are evaporated rapidly over a direct flame until precipitation occurs. About 3 c.c. of water are added, the tube is again heated to boiling to dissolve the precipitate, the contents of the tube are transferred quantitatively to a 10 c.c. volumetric flask, cooled, made up to the mark, shaken, and then filtered through cotton into the colorimeter chamber. The color is compared at once with that obtained from 0.64 mgm. of dextrose, 5 c.c. of saturated picric acid, and 1 c.c. of 10 per cent. sodium carbonate, when evaporated to precipitation over a free flame and diluted to 10 c.c. The calculation of the sugar present in the unknown blood sample is very simple. The original 2 c.c. of blood were diluted to 25 c.c. and of this amount 8 c.c. were taken for a determination. In other words, the aliquot contained the equivalent of $8/25 \times 2$ c.c., or 0.64 c.c. of blood.

Journal of Medical Research, Boston

January, XXXI, No. 3, pp. 331-568

79 *Colloidal Silver with Lecithin, in Treatment of Malignant Tumors. G. L. Rohdenburg, New York.
80 *Significance of Bacteria Cultivated from Human Cadaver. M. M. Canavan and E. E. Southard, Boston.
81 *Protective Value of Aqueous Extract (Hiss) of Leukocytes in Acute Infections in Animals. W. E. Youland, Jr., New York.
82 *Therapeutic Use of Aqueous Extract of Leukocytes (Hiss) in Lobar Pneumonia. W. R. Williams and W. E. Youland, Jr., New York.
83 Nodular Endarteritis of Aorta about Intercostal Arteries. O. Klotz, Pittsburgh.
84 *Reaction of Cows' Milk Modified for Infant Feeding. W. M. Clark, Washington, D. C.
85 *Study of Streptococci Isolated from Certain Presumably Milk-Borne Epidemics of Tonsillitis Occurring in Massachusetts in 1913 and 1914. T. Smith and J. H. Brown, Boston.
86 Agglutination Affinities of Pathogenic Bacillus from Fowls with Typhoid Bacillus of Man. T. Smith and C. TenBroeck, Boston.
87 Pathogenic Action of Fowl Typhoid Bacillus with Special Reference to Certain Toxins. T. Smith and C. TenBroeck, Boston.
88 Relation Between B. Pullorum (Rettger) and Fowl Typhoid Bacillus (Moore). T. Smith and C. TenBroeck, Boston.
89 Attenuation of Virus in Blood of Cholera Hogs to Prepare Vaccine. R. Graham and A. L. Brueckner, Louisville, Ky.

79. Colloidal Silver with Lecithin, in Treatment of Tumors.—The experiments described by Rohdenburg were negative.

80. Bacteria Cultivated from Human Cadaver.—Canavan and Southard present the results of a second series of 100 bacterial cultivations from a heart's blood and the cerebrospinal fluid post mortem in cases of mental disease. The bacteria were cultivated on agar plates inoculated with 1.5 c.c. heart's blood and others with 1.5 c.c. cerebrospinal fluid. Of the blood cultures, 44 per cent. remained sterile. Of the cerebrospinal fluid cultures, 24 per cent. remained sterile. Cocci prevailed and there were more cultivations of cocci from the cerebrospinal fluid than from the blood.

81. Protective Value of Aqueous Extract.—The possibility of leukocytes containing neutralizing substances within the meaning of immunity, Youland says, is remote. Leukocyte extract apparently exerts its action on animal infections only in the border line type of infection, and is without curative value in more constant conditions.

82. Therapeutic Use of Aqueous Extract.—The negative results Williams and Youland have obtained from the use of leukocyte extract as regards its action on the temperature, the leukocyte count, the condition of the patient, and on the course and termination of the disease, offer little hope of any appreciable therapeutic results from the use of this agent in lobar pneumonia.

84. Reaction of Cow's Milk Modified for Infant Feeding.—The addition of alkalis to modified milk for the purpose of neutralizing "the high acidity of cows' milk," Clark says, is based on wrong principles. The addition of alkalis to modified milk for the purpose of preventing firm clots in the infant stomach, is a procedure which not only may be unnecessary, but one which involves a possible inhibition of both gastric proteolysis and lipolysis. Finally, the addition of alkalis to modified milk is criticized because of its probable influence in displacing from the intestine a normal bacterial fermentation and replacing it with those proteolytic or "putrefactive" processes which are responsible for many of the digestive disorders of infancy.

85. Streptococci Isolated from Milk-Borne Epidemics of Tonsillitis.—The streptococci causing epidemics of tonsillitis, according to Smith and Brown, are not necessarily the same in different epidemics either in the same or different localities. The success likely to attend the tracing of such epidemics to their source will depend on a minute, detailed study of individual strains of streptococci and the discovery of certain minor distinguishing characteristics as guides. The streptococci which have been the agents of recent outbreaks are all alike in that the colonies produce, immediately around them, a clear hemolyzed area on blood agar plates (horse blood). They differ from the common throat coccus, in which the colony has a partly discolored and hemolyzed mantle between it and an outer, narrow, clearer zone. There is, at present, no satisfactory evidence that bovine streptococci associated with mastitis or garget are the agents of tonsillitis in man. Whenever cases of garget are suspected as sources of infection in man, both human and bovine types should be looked for.

Lancet-Clinic, Cincinnati

January, 23, CXIII, No. 4, pp. 81-108

90 *Present-Day Conception of Treatment of Nephritis. A. R. Elliott, Chicago.
91 Functional Tests in Renal Surgery. J. T. Geraghty, Baltimore.
92 Abortion: With Special Reference to Its Medicolegal Aspects. W. Gillespie, Cincinnati.

January, 30, No. 5, pp. 109-142

93 Modern Syphilis Therapy and Central Nervous System from Biologic Point of View. C. D. Camp, Ann Arbor, Mich.
94 Remarks on Antituberculosis Campaign. H. J. Achard, Asheville, N. C.
95 Antinoci Association. N. Rosewater, Cleveland.

90. Abstracted in THE JOURNAL, Nov. 21, 1914, p. 1878.

Medical Record, New York

February 6, LXXXVII, No. 6, pp. 211-252

96 Treatment of Sciatica by Perineural Infiltration with Physiologic Saline Solution. W. M. Leszynsky, New York.
97 Treatment of Sciatica by Epidural Injection of Saline Solution. I. Strauss, New York.
98 Mexican Typhus Fever. H. C. Michie, Jr., U. S. Army.
99 *Danger of Delay in Diagnosis and Treatment of Intussusception in Infancy. E. W. Peterson, New York.
100 *Deep Roentgen Therapy and Its Application in Treatment of Malignant Growths. S. Stern, New York.
101 Quinsy or Peritonsillar Abscess. E. H. Griffin, New York.
102 Pituitary Extract in Uterine Bleeding. A. Jacoby, New York.
103 Prevention, Treatment and Cure of Tuberculosis. O. Paget, Fremantle, W. Australia.
104 Splenectomy for Pernicious Anemia; Apparent Recovery; Death. J. F. Baldwin, Columbus, O.

99. Danger of Delay in Diagnosis and Treatment of Intussusception in Infancy.—The following points are emphasized by Peterson. 1. Intussusception in infancy presents a rather uniform and characteristic picture and should be recognized without difficulty. 2. Aerohydrostatic and mechanical measures can succeed in but a limited number of cases. Such treatment is not without danger. 3. Early laparotomy, with manual reduction of the invagination, is the safest, the simplest, and the most successful method of treatment.

100. Abstracted in THE JOURNAL, Oct. 10, 1914, p. 1321.

New Mexico Medical Journal, Las Cruces

January, XIII, No. 4, pp. 115-155

105 Artificial Pneumothorax in Treatment of Tuberculosis. A. G. Shortle, Albuquerque.
106 Effect of Direct Rays of Sun on Experimental Tuberculosis. D. C. Twichell, Albuquerque.
107 Optimum Dose of Tuberculin. J. F. McConnell, Colorado Springs, Colo.
108 Immunity and Tuberculosis. J. S. Cipes, Albuquerque.
109 Artificial Pneumothorax in Treatment of Tuberculosis. Report of Twenty Cases. E. H. Burns, Fort Bayard.

New Orleans Medical and Surgical Journal

February, LXVII, No. 8, pp. 671-748

110 *Emetin in Pyorrhea Alveolaris. C. C. Bass and F. M. Johns, New Orleans.
111 Acute Suppurative Osteomyelitis. J. F. Oechsner, New Orleans.
112 Two and Half Years' Experience with Phenolsulphonephthalein Test. S. Logan, New Orleans.
113 Intermittent Temperature in Typhoid. N. F. Thiberge, New Orleans.
114 "Modified" Bubonic Infection in Rats and Guinea-Pigs. N. H. Swellengrebel and L. Otten.

110. **Emetin in Pyorrhea Alveolaris.**—Further observations have led Bass and Johns to consider one hypodermic of ½ grain of emetin given every few days after the first course of several doses, as recommended in their former paper, to be of comparatively little value. If it is necessary to repeat the emetin it should be given for at least three days, as at first. The only indication for repeating the emetin treatment is the presence of ameba, which can best be determined by proper microscopic examination. The fact that it is sometimes necessary to make and examine several preparations from a lesion before ameba are found shows that even this method may be misleading, especially when negative. The authors emphasize the fact that the emetin destroys the ameba by some specific action, but that, after the ameba have been destroyed, the lesions remain, and will require a variable length of time to heal, according to the extent and character of the lesion, and other influences. The pocket is usually extensive and contains necrotic and, often, tough tissue (especially periosteum in the bottom), and more or less carious bone. For nature to liquefy and remove this material will necessarily require a considerable length of time, during which there must continue to be more or less pus formation. As long as the lesion is not healed up it naturally offers favorable soil for reinfection.

Bass and Johns have experimented considerably with fluidextract of ipecac as a local application made by the patient for the purpose of preventing reinfection, and have learned that not only will it theoretically prevent reinfection, but it will actually destroy the ameba present in many early lesions. The proper method of using it seems to be to brush the teeth in the usual way to clean, and then to apply one drop of fluidextract of ipecac to the wet rush and brush again forcing some of the solution between the teeth and spitting out the excess, but do not wash it out. They advise that all persons now free from the disease should use this specific, either in this form or possibly in some other form, as a prophylactic instead of the many commercial preparations now in use.

New York Medical Journal

February 6, CI, No. 6, pp. 229-276

115 *Active Immunization of Hay-Fever. S. Oppenheimer and M. J. Gottlieb, New York.
116 History of Extirpation of Spleen. E. B. Krumbhaar, Philadelphia.
117 Sexual Impotence. I. S. Koll, Chicago.
118 Is Sight to Be Sole Intellectual Sense? A. L. Benedict, Buffalo.
119 Digitalis Therapy. S. Neuhof, New York.
120 Chronic Indigestion Associated with Chronic Appendicitis. J. J. Gilbride, Philadelphia.
121 Nose, Throat and Ear Conditions. R. B. Scarlett, Trenton, N. J.
122 Urine in Old Age. H. Greeley, New York.
123 Case of Chronic Parenchymatous Nephritis with Myocarditis. H. A. Fisher, New York.

115. **Active Immunization of Hay-Fever.**—Oppenheimer and Gottlieb endeavored to immunize patients by injecting gradually increased doses of pollen extract to produce tolerance to the anaphylatoxin formed in the body. Beginning with from 1 to 5 units of pollen extract, the dose was gradually increased until a local reaction appeared at the site of the injection. This dose was then continued until the patient showed no more reaction. Then the dose was gradually increased as before. One unit of pollen toxin is the amount of antigen dissolved in 1 c.c. of extract at a dilution of from 1 to 20 millions. Eleven patients were treated in 1914, before and during the season for autumnal catarrh. Six patients were treated in advance of the attack. One of these was cured for the season, four exhibited very mild symptoms, and one was not improved. Five were treated during the attack. The symptoms in four subsided after receiving from one to four injections, whereas one patient received no benefit. Altogether there were five cures for the season. In four cases there was marked improvement In two cases there was no improvement. Of the two cases that were not improved, one patient had a polypoidal degeneration of the middle turbinate with underlying bone necrosis.

The other reacted to both ragweed and golden rod pollen. He received in all thirty-three injections, alternating the ragweed extract and the golden rod extract. He came very irregularly. It is possible that at times the treatment was too intensive. His physical condition was so poor that possibly a tolerance could not develop. Nine patients reacted to ragweed pollen and two reacted to that of both ragweed and golden rod. Both of these received both golden rod and ragweed antigen hypodermically. One was cured, but the other was not improved. The authors describe in detail their method for obtaining the pollen. It is extremely cumbersome and Oppenheimer and Gottlieb are now working on a less laborious method.

Ophthalmology, Seattle

January, XI, No. 2, pp. 237-436

124 Original Research in Ophthalmology and Otolaryngology on Pacific Coast. C. T. Cooke, Seattle.
125 Sclerocorneal Trephining in Operative Treatment of Glaucoma. R. H. Elliot, Seattle.
126 Surgical Clinic of Col. Robert Henry Elliott. G. W. Swift, Seattle.
127 Sclerocorneal Trephining. E. E. Holt, Jr., Portland, Me.
128 Case of Glaucoma Cured by Elliot Operation. N. H. Goodenow, Everett.
129 Relation of Special Sense Functions to Intracranial Diseases. W. House, Portland, Ore.
130 Ultraviolet Light and Some of Its Effects. F. A. Osborn, Seattle.
131 Anomalies of Accommodation and Their Practical Significance. J. L. McCool, Portland, Ore.
132 Smith Indian Cataract Operation in Light of Scientific Investigation. A. S. Green and L. D. Green, San Francisco.
133 Delayed Healing of Wound in Cataract Extraction and Its Proper Treatment. D. T. Vail, Cincinnati.
134 Twelve Consecutive Intracapsular Cataract Operations and Their Visual Results. W. A. Fisher, Chicago.
135 Should Intracapsular Method of Cataract Extraction be Adopted by Oculist of America? O. Tydings, Chicago.
136 Annular Opacity of Anterior Surface of Lens after Traumatism. C. Zimmermann, Milwaukee, Wis.
137 Two Cases of Exophthalmic Goiter with Ocular Muscle Complications. L. M. Willard, Wausau, Wis.
138 Results of Examination of 500 Consecutive Cases with Stilling's Plates. G. H. Taylor, Sydney, New South Wales.
139 Extraction of Metallic Foreign Body from Vitreous by Giant Magnet Through Scleral Incision. Report of Case. C. B. Welton, Peoria, Ill.

Pennsylvania Medical Journal, Athens

January, XVIII, No. 4, pp. 251-332

140 Borderland Topics in Ophthalmology and Otolaryngology. J. C. Beck, Chicago.
141 Antityphoid Vaccination. E. R. Whitmore, Washington, D. C.
142 *Value of Typhoid Vaccines in Typhoid. E. B. Krumbhaar and R. Richardson, Philadelphia.
143 Salvarsan in Therapeutics of Childhood. T. Le Boutillier, Philadelphia.
144 Syphilis in Children. W. C. Hollopeter, Philadelphia.
145 *Appendicitis as Seen by Internist. Report Based on Seven Hundred Cases. J. A. Lichty, Pittsburgh.
146 Appendiceal Dyspepsia. J. J. Gilbride, Philadelphia.
147 Correlation of Appendicitis and Other Abdominal Affections. L. J. Hammond, Philadelphia.
148 Cesarean Section. E. P. Davis, Philadelphia.
149 Indications for Cesarean Section. H. A. Miller, Pittsburgh.
150 Operative Procedure in Treatment of Gunshot Wounds of Stomach and Intestines. J. A. Klump, Williamsport.

142. **Value of Typhoid Vaccines in Typhoid.**—The curative use of typhoid vaccines in the course of typhoid in order to stimulate further antibody formation, according to Krumbhaar and Richardson, has a logical theoretic basis, although its mode of action has not as yet been demonstrated experimentally. Practical proof of its value is afforded by the rise in agglutinin curves after such vaccination. The proper use of vaccines in the treatment of typhoid has been found in over 1,800 cases cited by various clinicians to be without harm, and usually to be followed by beneficial results. The 93 cases reported by the authors support this view. The best results are obtained if the injections are begun early in the disease, especially before the tenth day. Late in the course of the disease, except in selected cases, the value of

vaccine (both theoretically and practically) is more dubious. In the chronic complications of typhoid, such as periostitis and cholecystitis, other investigators have obtained good results from vaccines. The contra-indications against vaccine treatment of typhoid are not yet clear. The authors hesitate to advocate their use in moribund or very toxic cases, during hemorrhages or suspected perforations, or in such complications as pneumonia or otitis in cases in which other organisms are involved.

The best dosage has also not been determined. Semple, Petrowitch, Watters and Eaton have had good results with small doses; MacArthur, Fletcher, Meakins and Foster equally good results with much larger doses. While this would indicate to some that the true benefit lay elsewhere, Krumbhaar and Richardson feel that the discordance is due to differences of patients and epidemics, preparation of vaccines, and "personal factors." The dosage must vary within certain limits for each patient and no cut and dried rule should be attempted. The more severe the infection, the smaller and more cautious must be the dosage. With their methods of preparation, they felt that the best initial dose for the average adult was 500 million; if this proved to be the proper amount, two or more larger doses were given usually at three-day intervals.

145. **Appendicitis.**—Since only eight out of about 700 patients seen by Lichty under all conditions and circumstances died, he believes that the disease need not be considered with such alarm. He adds, however, that an early operation during the first acute attack is not only safest but will likely prevent a life of more or less chronic invalidism. He advises that a careful routine study of the leukocytes in acute appendicitis is of diagnostic value, and a routine study of the gastric secretion in chronic appendicitis yields valuable information. The end results in cases of chronic appendicitis are often unsatisfactory and can not be definitely foretold.

Texas State Journal of Medicine, Fort Worth

January, X, No. 9, pp. 347-394

151 Some of Our Problems. I. Dyer, New Orleans.
152 What Must We Do To Be Saved? L. H. Reeves, Decatur.
153 Baby Health Contest an Educational Factor in Preventive Medicine. J. I. Collier, Taylor.
154 Waste in Medical Education. J. H. Mackay, Francitas.
155 Sociologic View of Refractive Errors. W. G. Hartt, Marshall.
156 Neglect of Deformities in Children. C. S. Venable, San Antonio.
157 Pessimism Concerning Treatment of Cancer. J. T. Moore, Houston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

January 23, I, No. 2821, pp. 145-188

1 Surgical Notes from Temporary Clearing Hospital at Front. A. A. Martin.
2 Acidosis and Nitrogen Partition in Pregnancy. H. L. Murray.
3 *Cases of Inoperable Cancer Treated with Goat Serum. A. Wilson.
4 Case of Tetanus: Recovery. J. H. Ewart.

3. **Cases of Inoperable Cancer Treated with Goat Serum.**—In 1890 a patient, aged 60, suffering from inoperable cancer of the uterus was treated by Wilson with goat serum. Six ounces of serum were injected into the basilic vein. The serum reaction was severe. The uterus healed in about six weeks and the disease was apparently cured. She lived two years and died of an acute disease. Five other cases are cited by Wilson suggesting that the goat serum relieves pain by attacking the outskirts of the advancing growths, retarding or preventing their advance into normal and sensitive tissues. A sufficiency of the same chemical action ought to lead to shriveling up of the tumor, and did so in some instances.

Bristol Medico-Chirurgical Journal, London

December, XXXII, No. 126, pp. 257-325

5 Evolution of Gynecology. W. H. C. Newnham.
6 Bristol Medical Societies. G. M. Smith.
7 Treatment of Coliuria in Children. R. G. Gordon.
8 Some Impressions of 1914 British Pharmacopeia. O. C. M. Davis.

Lancet, London

January 23, I, No. 4769, pp. 171-216

9 Against His Own Body (Sex Topics). D. Power.
10 *Black (Pigmented) Appendix. W. H. Battle.
11 *Theory of Salicylate Therapy in Rheumatic Infection. R. Miller.
12 Dry Cupping in Laryngeal Affections. W. Stuart-Low.
13 Some Uses of Static Electricity in Medicine and Surgery. J. J. Grace.
14 Congenital Lymphangioma Situated Over Sternum. J. A. C. Macewen.
15 An Extraordinary Accident. T. O. Thompson.
16 Simple Splint for Fractures of Upper Extremity. M. W. B. Oliver.
17 Removal of Sebaceous Cyst Under Suggested Anesthesia. J. W. A. Cooper.

10. **Black (Pigmented) Appendix.**—Two cases of marked pigmentation of the appendix met with in women of different ages and circumstances are cited by Battle making a series of six cases seen by him and which present some common features. In the first place there was an extensive brownish-black pigmentation evidently not limited to the appendix but spreading an unknown distance into the large bowel. The patients were all females (aged 27, 30, 32, 43, 48 and 48) and in each there was a history of constipation of long standing, which amounted to intestinal stasis in more than one of them according to their attendants. It would appear as if in some the difficulty with the bowels had led to a secondary inflammatory affection of the appendix. Operation in each was for the relief of pain caused by this. The pigmentation was found on examination of the removed appendix, and in only one was there any appearance of darkening of the bowel as examined from the operation incision. Microscopic examination showed the deposit to be both in and between the cells of the mucous membrane.

Chemical analysis of the first three specimens showed that the pigmentation was produced by a deposit of iron, the exact combination not being defined owing to the small quantity of material available. There was no bismuth, lead, or mercury present. In only one patient was there any history of the taking of iron in medicine, and she had been given the compound syrup of the hypophosphites. As to the source of iron, Battle says, there can be very little doubt that it is derived from wheat flour prepared by the iron rollers which are used in the modern process of milling. Chemical examination of a quantity of best flour has shown the presence of an abnormal amount of iron, although none could be separated from the flour by means of a magnet. The question of the influence of roller milling in the causation of appendicitis is one which has interested Battle for some years. Facts are accumulating to show that it is a serious factor.

11. **Salicylate Therapy in Rheumatic Infection.**—That salicylate has the power of diminishing the activity of the rheumatic infecting agent, Miller says, may be taken as the working basis of salicylate therapy in rheumatism, and the drug should be administered with the sole view of controlling the bacterial activity. Of this the temperature chart is as accurate an index in rheumatic as in other infections (namely, tuberculosis). Care must be taken to discriminate between symptoms directly due to active rheumatic inflammatory processes and those dependent on toxic parenchymatous changes which may remain long after all bacterial activity is at an end. The temperature chart is the guide to the dose of salicylate to be employed. Used solely with a view to controlling bacterial activity; the effective range of dosage for child or adult is usually from 60 to 120 grains per diem. Less than 1 dram daily is rarely sufficient; more than 2 drams need seldom be given. Much larger doses than these have been shown to be safe if properly administered, and if necessary to gain control, may be used, but for the most part "massive" doses have been administered in cases of chorea in which there was no evidence of bacterial activity remaining.

Any dose greater than 100 grains daily should be given subdivided into 10 doses in the twenty-four hours. Large infrequent doses should never be given, particularly in children. Constipation must be avoided. The sodium salicylate should be combined with an equal dose of sodium bicarbonate;

Miller has not found the double quantity of soda necessary in doses of this grade. Vomiting in cases of severe cardiac dilatation may be difficult or impossible to prevent, but in other cases may be avoided for the most part. The more serious symptoms of salicylate poisoning (acid intoxication) should nowadays never be allowed to arise.

Quarterly Journal of Medicine, London

January, VIII, No. 30, pp. 97-190

18 *Dyspnea and Its Relation to Blood Reaction (Acidosis). T. Lewis and J. Barcroft.
19 *Congenital Myotonia; Thomsen's Disease. W. Johnson and G. Marshall.
20 Rationale or Modus Operandi of Wassermann Reaction and Abderhalden's Test. J. E. R. McDonagh.
21 Metabolism of Nitrogen in Dermatoses. H. L. Tidy.
22 Salvarsan Treatment of Congenital Syphilis. L. Findlay and M. E. Robertson.

18. **Dyspnea and Its Relation to Blood Reaction.**—The following is a synopsis of the cases reported by Lewis and Barcroft. 1. Dyspnea in a man who presented signs of renal and myocardial affections. Nocturnal attacks. Acidosis was found on two occasions. 2. A case of cardiovascular affection. Dyspnea on exertion and nocturnal angina pectoris. Acidosis found. 3. A case of arteriosclerosis and renal affection in a woman who exhibited breathlessness. Nocturnal attacks and Cheyne-Stokes breathing present. Acidosis found. 4. A case of cardiorenal affection in an old woman. Cheyne-Stokes breathing and dyspnea prominent. 5. Aortic disease and aneurysm, cardiac failure, renal involvement. Dyspnea, often intensified for short periods, was a chief feature of the case. Cheyne-Stokes breathing was found. 6. A case of aortic disease, cardiac failure and renal involvement. Dyspnea, Cheyne-Stokes breathing, nocturnal intensification of breathlessness, prominent. Terminal pneumonia present. 7. Cardiac failure of rheumatic or specific origin, in a man who exhibited mitral stenosis and aortic disease. Dyspnea present. No acidosis. 8. A case of mitral stenosis with auricular fibrillation and cardiac failure. No acidosis found. 9. Cardiac failure in a patient who exhibited mitral stenosis. Dyspnea present, but no acidosis. 10. Pregnancy in a patient suffering from rheumatic heart disease. Breathlessness accompanied by acidosis. 11. A case of large white kidney, with dropsy of renal type, complicated by aortic disease and slight mitral stenosis. Urgent breathlessness in the absence of cyanosis was a feature of the case. Acidosis was discovered. 12. Pneumothorax giving rise to acute illness in a dormant case of pulmonary tuberculosis. Dyspnea accounted for, partially at all events by acidosis. 13. A case of exophthalmic goiter, complicated by maniacal symptoms, persistent vomiting, and distress of breathing in a young man. Acidosis was found. Death from exhaustion. 14. A case of acute pneumonia in a young man, ending in recovery. On the fourth day acidosis was found. The crisis occurred on the eighth day; acidosis though of lesser degree, was present on the tenth day; during convalescence the blood reaction was normal. 15. A case of severe acute pneumonia in a young man, terminating fatally. Profound acidosis was discovered on the tenth day of illness. 16. A case of acute pneumonia, ending fatally, in an elderly woman. Acidosis was found on two occasions during the course of the illness. The CO_2 tension in exposed air was low. 17. A case of acute lobar pneumonia in an otherwise healthy young man; ending in recovery. Acidosis was found. 18. Paroxysmal breathlessness in a man who had signs of cardiac and renal involvement with aortic aneurysm. Exaggerated acidosis found during the attack.

19. **Congenital Myotonia; Thomsen's Disease.**—Of a family of eight children examined by Johnson and Marshall, four were found to be affected with Thomsen's disease. It was possible to investigate three of these carefully. They found the physical signs of the nervous system were normal; that the muscles in all three cases were larger than normal, but the actual strength of contraction and ability to maintain that contraction for any length of time were below normal. The myotonic contraction did not occur in reflex action. The duration of the local contraction produced in a muscle by mechanical stimulation varied with the degree of force used by the percussing finger. In one case, dyspnea was easily provoked by any exertion, and this patient took an anesthetic very badly. Also, in one case the authors carried out a histologic investigation of the muscle and compared it with muscle removed from a normal living control. They find that in Thomsen's disease the muscle fibers are larger than normal, their diameter being about twice the normal size. This increase was entirely the result of increase in the number of fibrillae in each fiber. The nuclei were in proportion to the size of the fibers, that is to say, there was no relative increase. Some of the nuclei occupied a position in the substance of the sarcoplasm. The longitudinal and transverse striation of the fibers showed no variation from the normal.

In another case a series of myographic tracings were taken. There was no definite alteration in the contractions whether taken in the morning or in the evening after a day's activity. Complete immobilization of a limb for twelve hours produced exaggeration of the condition in the muscles so rested. After numerous repetitions of a movement, the action became more brisk, but the patient was always twice as slow as a normal control. Reinforcement quickened up the first movement of a series at the expense of the later ones, thus conforming to the reaction met with in the normal subject. Alterations in temperature produced no registerable effect. Ischemia and congestion both caused lengthening of the contraction. Electrical stimulation by electrodes applied to the skin showed that weak stimuli produced brisk contractions, and strong ones a prolonged spasm. With the patient anesthetized they were able to stimulate the median nerve, directly with weak faradism. Momentary stimuli produced a contraction which persisted for fifteen seconds and prolonged stimulation a contraction which lasted only eight seconds. After two hypodermic injections of strychnin the muscular movements became practically normal. Johnson and Marshall suggest the use of strychnin in the treatment of this disease.

Bulletin de l'Académie de Médecine, Paris

January 5, LXXIII, No. 1, pp. 1-46

23 General Principles for Treatment of Typhoid. F. Glénard and A. Robin.
24 Importance of Roentgen Apparatus at the Front. (Nécessité d'une installation radiologique pour la chirurgie de guerre.) P. Bazy.
25 Prophylaxis of Typhus and Relapsing Fever. C. Nicolle and E. Conseil.
26 Extension Walking Apparatus for Fracture of the Femur. P. Delbet.
27 Indications for Operative Treatment of Wounds of the Orbit. (Blessures de guerre orbito-oculaires.) F. de Lapersonne.
28 *The Ultraviolet Rays in Treatment of Freezing Injuries. (Action des rayons de courtes longueurs d'ondes sur les membres congelés.) J. Pougnet.

28. **Ultraviolet Rays in Treatment of Frozen Members.**—Pougnet has applied to human tissues the discovery that the ultraviolet rays revive frost-bitten plant buds. He exposed the frozen limb for three or four minutes every two hours to the rays from a quartz mercury lamp, with a current of 110 volts and 4 amperes, the distance 25 cm. No appreciable benefit was observed with simple freezing, but when the freezing was accompanied with ulceration the effect was quite marked, healing commencing by the third to fifth day. In one case in which both feet had been frozen and were swollen, blistered and painful, the pain was arrested by the ninth or tenth sitting and the swelling subsided the sixth day. He adds that many soldiers are being sent back from the front now with badly swollen feet, and he hopes that this treatment will thus be given a thorough trial.

Presse Médicale, Paris

January 14, XXIII, No. 2, pp. 9-16

29 *Treatment of Typhoid. E. de Massary and E. Weil.
30 Adjustable Aluminum Splints. (Attelles en aluminum pour fractures et plus spécialement pour fractures compliquées.) Marion.

29. **Treatment of Typhoid.**—De Massary's experience has convinced him that the constant application of an ice bag to the abdomen answers all the purposes of cold baths, while it leaves the patient in peace. He gives a number of case his-

tories to illustrate his method and its advantages. Except for cleansing purposes, he thinks repeated baths in typhoid are not only useless but harmful. To keep the patient absolutely quiet and supply fluids in abundance are the main indications, supplemented by the continuous chilling of the abdomen. For this he covers the abdomen with a thick layer of talcum powder and over this a thin flannel. On this is placed a large bag of ice, not filled full, as its weight must not be heavy nor even enough to cause discomfort. The air is carefully expelled from the ice bag, so it will be limp and fit to the surface below. The whole is kept in place with a folded sheet; a bandage is apt to roll up and slip. If the skin shows purple anywhere, the ice should be suspended for a few hours. He has been using this treatment for years and has had but one eschar, and then it was only superficial. The bag does not need filling oftener than every two and a half hours.

The patient is encouraged to drink often so he gets up finally to 4 or 5 liters, including 2 or 3 liters of boiled milk flavored with coffee, tea or alcohol. After each cup, the patient rinses his mouth with an alkaline fluid and swallows a mouthful. Tea and other infusions flavored with alcohol in some form make up the copious intake of fluids. This keeps the salivary glands and kidneys working and thus wards off parotitis and other complications. The injury from lack of fluids is shown in the cases of soldiers sent back from the front with typhoid. They are unable to get much to drink on the journey, and suppurative parotitis developed in three such cases recently in his service. He has the tongue, gums and pharynx cleaned regularly with a mixture of equal parts of glycerin and Vichy water, and a few drops of camphorated oil are placed in each nostril. He keeps up the refrigeration of the abdomen until the temperature has been normal for two days. He declares that it is the best possible means to combat the ulcerative enteritis of typhoid, while it acts also on the septicemia by chilling the blood. Experiments have shown that the blood is chilled in this way as effectually as when the ice bag is applied to the heart region. His mortality in forty-six cases in three years has been 4.3 per cent. Among the soldiers, received mostly under unfavorable conditions, the mortality has been higher, bringing the total up to 8.5 per cent. of 140 cases.

Beiträge zur klinischen Chirurgie, Tübingen

XCIV, No. 1, pp. 1-224. Last indexed February 13, p. 623

31 Traumatic Pseudo-Aneurysm. Wieting Pasha and Orhan Bey.
32 Entire Scalp Torn Off; One Hundred and Eleventh Case on Record. R. Müller.
33 Closure of Extensive Defect in Abdominal Wall; Three Cases. (Verschluss von Bauchwanddefekten.) C. Goebel.
34 Recurring Umbilical Colic in Children. H. Graff.
35 Diffuse Perforation Peritonitis. W. Kotzenberg.
36 Peritoneal Pseudomyxoma. Loth.
37 Mesenteric Cysts. Kayser.
38 Diverticulitis and Sigmoiditis; Eleven Cases. P. Sudeck.
39 Syphilitic Stricture in the Rectum; Seventeen Cases. Schulte-Tigges.
40 Fibroma in Kidney Region Casting Roentgen Shadow; Two Cases. Orhan Bey.
41 Spontaneous Crumbling of Bladder Calculi; Three Cases. (Selbstzertrümmerung von Blasensteinen.) R. Klauser.
42 Changes in the Bone Stumps after Amputations. W. Meinshausen.
43 Methods of Fixation of Fractured Bones and Pseudarthrosis. Loth.
44 Nail Extension in Treatment of Fracture of the Fingers. W. Burk.
45 Dislocation of Semilunar Bone with Fracture of Cuneiform. F. Oehlecker.
46 Isolated Disease of the Lunar Bone from Standpoint of Industrial Insurance; Twenty Cases. G. Becker.
47 Accidents with Overstretching of Elbow and Wrist. (Ueber Zerrungskrankheiten am Ellbogen und Handgelenk.) H. Petersen.

Berliner klinische Wochenschrift

January 4, LII, No. 1, pp. 1-24

48 *The War and the Medical Profession. (Der Krieg und die Aerzte.) M. Kirchner.
49 History of Venereal Diseases. (Geschlechtsleben und Geschlechtskrankheiten in den Heeren, im Kriege und Frieden.) K. Touton. Concluded in No. 3.
50 The Field Hospital. (Ueber truppenärztliche Erfahrungen in der Schlacht.) Krüger-Franke.
51 *Acute Leukemia. (Zur Differentialdiagnose zwischen Sepsis und akuter Leukämie.) H. Hirschfeld and L. Dünner.
52 *Traumatic Pneumonia. (Ueber dyspnoische Kontusionspneumonie.) Westenhöfer.
53 *Vaccination against Chicken-Pox. (Technik der Schutzimpfung gegen Varicellen.) C. A. Kling.
54 Luetin Reaction in Diagnosis of General Paresis and Tabes. (Noguchi's Luetinreaktion mit bes. Berücksichtigung der Spätlues des Centralnervensystems.) V. Kafka.

January 11, No. 2, pp. 25-44

55 *Effect of Physical Exertion on the Heart of the Soldiers at the Front. (Leichte Herzveränderungen bei Kriegsteilnehmern.) A. Magnus-Levy.
56 *Abnormal Elimination of Calcium in Children's Urine. H. Kleinschmidt.
57 *Familial Occurrence of Friedreich's Ataxia, Myxedema and Dwarf Growth. M. Rothmann.
58 Varnish as Aid in Dressing Wounds. (Zur Beurteilung von Harzlösungen für Verbände.) H. Wolff.

48. **Physicians and the War.**—Kirchner compares the work and achievements of the medical corps now with those of former wars, declaring that such a comparison shows better than anything else the vast progress made in recent years in the medical sciences. The latest achievement is the systematic effort from the very first to treat the wounded in such a way that the crippling thereafter will be the least possible. Preservation of the earning capacity is in the mind of the surgeon tending each wounded man, and this principle is carried through in the convalescent homes, orthopedic institutions and training schools later. The specialization in practice previous to the war brought hardships at first, as certain specialists were comparatively helpless outside of their particular field. The appointment of consultants in internal medicine, etc., soon remedied this, but the experiences during this war, he thinks, will tend to impress on physicians the advantage of all-around training instead of intense specialization.

51. **Differential Diagnosis of Sepsis and Acute Leukemia.**—In the case reported, a man of 29 suddenly developed fever, chills and pains in the chest and abdomen. In the course of three weeks the symptoms partially subsided, but the headache persisted, with a temperature of 39.4 C. and pulse 128; leukocytes 4,000; but no edema nor enlargement of glands. Finally the gums began to bleed; a necrotic patch developed and the blood count then showed only 400 leukocytes. The temperature rose, while the red cells dropped to 1,700,000, and the man died in less than six weeks from the first symptoms. Necropsy showed intense proliferation of myeloblasts, although they had not poured out into the circulating blood. No bacteria were found in the blood or organs, not even in the necrotic patch in the gums.

52. **Pneumonia After Contusion.**—The claim for an indemnity was based on the development of fatal pneumonia soon after a contusion of the right chest. The pneumonic process was localized mainly in the left lung. The exhumed cadaver showed that the left lung had long been bound down by adhesions and its functioning was thus much impaired, and it was not equal to the task thrown on it by the accident to the other side of the chest, breaking the ribs and causing the man to spare that lung as much as possible. The experts therefore agreed that in all probability the pneumonia would not have developed if the trauma had not occurred.

53. **Vaccination Against Chicken-Pox.**—Kling points out several minor points in technic which may explain Handrick's failure in his attempts to stamp out varicella in an institution by vaccination (mentioned in these columns January 16, p. 284). Kling's success in this line he ascribes to the large number of inoculations made, always six or seven, and to the use of the lancet in making the scratches instead of injecting the virus with a needle. In Kling's service 73 per cent. of 108 children not vaccinated developed varicella, while only 23 developed it among the 135 vaccinated, and in all but 10 the eruption was restricted to the vicinity of the vaccination field.

55. **Slight Changes Evident in the Heart on Return from the Seat of War.**—Levy comments on the great change in the hospitals at Berlin from the cases of patients formerly encountered, most of them with chronic diseases, to the present patients, the hosts of vigorous young men. Even in these strong and sturdy bodies, however, he frequently encountered symptoms such as are observed only with slight

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mitral insufficiency, with or without a slight tendency to stenosis. It is possible that in some of them there may have been an old slight spark of valvular disease which was fanned alight by the physical exertions of the campaign, but he thinks this explanation can apply to only a small proportion. Brugsch suggests that these heart changes are of infectious nature, which assumption would explain also the polyneuritis or fever sometimes observed with them, but Levy objects to this in that even with the mildest infectious endocarditis the course is not so free from complications as in the cases he is discussing. The most plausible explanation is that the heart is simply suffering from the continuous physical overexertion from the marching without adequate periods for rest and sleep. This overexertion kept up for weeks and months, when the troops are all the time on the march, exhausts the men, so that in some the nervous system becomes unstable and, like children, they respond with fever to slight causes.

56. **Abnormal Elimination of Calcium in Children's Urine.**—Kleinschmidt remarks that children sometimes have a milky, turbid urine with a white sediment consisting of calcium carbonate and phosphate. The total elimination of calcium, however, is not increased, as the usual proportion in the stools is lower to balance the increase in the urine. The pellicle that forms on such urine suggests that colloids in the urine cause the turbidity. Adults sometimes have as much calcium sediment in the urine, but the urine is not turbid. The metabolic findings and the appearance and subsidence of the calcium salts in the urine in two typical cases described in detail, testify to the fact that the phosphaturia is of nervous origin. The children presenting this condition are always those with unstable nervous systems, usually an inherited neuropathic taint. Restless sleep or sleeplessness, headache, pallor, sweats, pruritus, abdominal pain, diarrhea and hysteric or epileptic attacks are common. The most convincing proof of the nervous origin of the calcariuria is the prompt way in which it subsides, as a rule, after change of scene, while dieting, etc., may not influence it at all.

57. **Familial Ataxia and Myxedema.**—Rothmann relates that a girl of 15 had curvature of the spine, ataxia and talipes cavus. The father and three sisters are normal but a brother of 18 has myxedema and talipes cavus and never grew taller after the age of 10. The mother developed myxedema after the menopause. The history of this family seems to indicate that there must be some connection between the defective functioning of the thyroid, causing the myxedema and the dwarf growth, and the hypoplasia of the central nervous system responsible for the Friedreich's ataxia—all of which are manifestations of perverted functioning in the internal secretion system. The combination of acromegaly and syringomyelia, cases of which Petren has published, confirm this connection between certain affections of the nervous system and the internal secretions. Rothmann treated the mother and son mentioned above with thyroid tablets, and the myxedema retrogressed considerably, while the son grew 2 cm. in height in six weeks, down appeared in the axillae, the childish treble voice became deeper, and he lost nearly 4 kgm. of his proportional excessive weight. This benefit under thyroid treatment confirms the assumption that ascribes the dwarf growth and infantilism to hypothyroidism. The girl with ataxia was given the thyroid treatment, too, but no positive benefit was apparent.

Correspondenz-Blatt für Schweizer Aerzte, Basel

December 5, XLIV, No. 49, pp. 1521-1552

59 *Artificial Pneumothorax in a Diabetic. J. Bossart.

December 12, No. 50, pp. 1553-1584

60 Dementia Praecox Developing from Shock of Being Called to the Colors; Seventeen Cases. (Die Mobilmachung als krankheitsauslösendes Trauma bei Dementia praecox.) J. Jorger.

61 The Voice and Its Training. (Stimme und Stimmbildung.) F. Diebold. Commenced in No. 49.

December 19, No. 51, pp. 1585-1644

62 *Treatment of Tuberculous Bone and Joint Disease. (L'héliothérapie des Ostéo-Arthrites tuberculeuses.) A. Rollier. (Wahl der operativen oder der konservativen, speziell der Sonnen-Behandlung, bei der Knochen- und Gelenktuberkulose.) J. Kopp.

December 26, No. 52, pp. 1645-1676

63 *Functional Examination of the Kidneys. (L'examen fonctionel des reins.) L. Michaud.

64 Conditions in which Alone Hypophysis Extract Should Be Given Obstetric Cases. (Vorbedingungen zur Anwendung der Hypophysenextrakte in der Geburtshilfe.) S. Stocker.

59. **Artificial Pneumothorax in a Diabetic.**—A man of 55 had had mild diabetes for seventeen years, and during the last year signs of progressive pulmonary tuberculosis appeared, with albumin in the urine. He became very weak and, as a last resort, an artificial pneumothorax was induced on one side although there were evidently foci in both lungs. As the gas was injected it was evident that there were adhesions between the sheets of the pleura, but these stretched or tore under the positive pressure of the gas so that the pneumothorax could be properly concluded and maintained. Marked improvement followed; the fever subsided, the albumin was only 0.1 per thousand and sugar only 0.7 per cent. and the diazo reaction became negative. Bossart adds that in all but three of his forty-seven cases requiring artificial pneumothorax, the gas had to be injected under considerable positive pressure. He does not think there is much danger of air embolism even when there are tough connective tissue adhesions. They resist the pressure from the gas while there is no danger with the purely fibrinous adhesions which tear at once.

62. **Treatment of Bone and Joint Tuberculosis.**—This entire number of the *Corr.-Blatt* is devoted to the discussion of this subject which took place at the annual meeting of the Swiss Surgical Association a few months ago. Rollier of Leysin reported his results with what he calls helio-alpine treatment applied in 2,000 cases of tuberculous processes in bones and joints in the last ten years. He declares that, with his method, bone and joint tuberculosis of all forms and degrees and at all ages can be cured. His leading principles are that these lesions, as well as visceral and glandular tuberculosis, are not a local process but a general disease, and that the skin is an organ for absorption as well as for other functions. Exposure to the sunlight has thus a microbicidal action, but also an oxidizing, a reducing and an analgesic action while it promotes the development of fibrous tissue and modifies the medium. With Pott's disease, keeping the patient lying prone develops the muscles of the chest, back and trunk throughout, while it tends to correct the gibbosity by the exaggeration of the physiologic lordosis. The exposure of the uncovered back to the sunlight heals up the sources of suppuration. A complete cure with restoration of function is possible in nearly all the cases in which formerly we would have been well content with healing leaving a stiff joint. He has discarded plaster casts entirely and uses only apparatus for extension which facilitate the constant development of the muscles. One of the greatest advantages of heliotherapy, he adds, is that the cold abscesses heal without opening outward. Among his 158 cases of hip-joint disease, 125 were completely cured, with restoration of function in 102. In the 120 knee cases, 78 of the 106 cured cases have had function restored. In the 198 cases of Pott's disease, 171 are cured and 18 improved.

He regards his labor colony as an important factor in the result in some cases. This is an institution in which baskets and wicker chairs are made, the work done out of doors and the convalescents remunerated for their work. They are thus able to pay their way in part or in full and are not obliged to hurry away to support themselves before their cure is complete. He also has a farm colony where convalescents may aid in the raising of stock and bees, which has, in connection, a dairy and hot-houses for vegetables. These farm or greenhouse colonies could be founded anywhere, and they provide ideal conditions for those convalescing from tuberculosis while training them in scientific farming so that they can find employment later without returning to city life. He would like to see such institutions run by the state as subsidiary to tuberculosis heliotherapy institutions, preferably in the mountains. They would return to active life, in time, many tuberculous persons now destined to become crippled and to crowd our hospitals and homes for incurables.

Kopp said that he prefers to operate in such cases unless the trouble is in the early stages or if it is too late to operate. These two groups are the only ones for which he thinks heliotherapy alone is adapted. In the intermediate cases the operation and healing in a few months should be balanced against the from one to three-year course of heliotherapy. It is possible that the latter may render unexpected services as an immediate supplement to operative measures, warding off recurrence. He joins in appealing to the authorities to organize state institutions for heliotherapy in charge of a skilled surgeon who does not expect the sun to do all the work.

Kocher reported the ultimate outcome twenty and twenty-five years after operative treatment of tuberculosis of the shoulder, elbow, hip joint and knee in 436 of his cases out of a total of 728. A number have died from progress of some preexisting focus elsewhere, but the results in the others are remarkably satisfactory. All the 28 surviving shoulder cases are entirely cured with free use of the shoulder, with one exception in which the shoulder functioning is defective. Of the 44 elbow cases, the arm can be used in all but 5; in 14 the joint is almost normally movable, in 16 it is stiff. He emphasizes, as the guide to treatment, the way in which Nature heals in casting off the tuberculous products. It is particularly impressive in the cases of open and multiple local tuberculosis which have healed under heliotherapy. With operative treatment the best results were always attained when the operation had been most radical.

63. **Tests of Kidney Functioning.**—Michaud refers only to those tests which reveal the part of the kidney involved in the nephritis. He tabulates his own findings in 110 cases and endorses Widal's classification of cases of nephritis into those with retention of salt in the blood and those with retention of nitrogenous substances in the blood. The retention of salt can be detected by regular weighing of the patient. A sudden increase of 1 kilogram in weight in nephritis corresponds to retention of 5 or 6 gm. of chlorids as a rule. Retention of nitrogen is revealed by regular examination of the proportion of nitrogen in the urine and of urea in the blood. Widal claims that the determination of the urea in the blood is more important clinically than determination of the proportion of albumin in the urine. The attempts to distinguish between glomerular and vascular nephritis have not given conclusive or instructive results, while classification of nephritis with high blood pressure and retention of chlorids or with retention of both salt and nitrogen, etc., points the way to treatment, as we thus learn exactly what the kidneys are incapable of doing.

Deutsches Archiv für klinische Medizin, Leipzig

CXVII, No. 1, pp. 1-77. Last indexed January 23, p. 374

65 Transitory Complete Irregularity of the Heart with the Clinical Picture of Arhythmia Perpetua. (Vorübergehende komplette Herzunregelmässigkeiten.) K. Fahrenkamp.

66 *Hemoglobinuria Induced by Walking. (Marschhämoglobinurie.) O. Porges and R. Strisower.

67 The Intramural Nerve Supply of the Heart. (Der intramurale Nervenapparat des Herzens.) W. Glaser.

68 *Cell Inclusion Bodies of Döhle. (Leukocyteneinschlüsse.) H. Rehder.

69 The Second Wave of the Venous Pulse. (Zur Genese der zweiten Hauptwelle des Venenpulses.) R. Friberger.

66. **Hemoglobinuria Induced by Walking.**—There are several forms of paroxysmal hemoglobinuria, among which that caused by walking is the least known. Hemoglobinuria induced by cold is not very rare. The patients are generally syphilitics with vasomotor disturbances and attacks of chills, fever and prostration of moderate degree, with the hemoglobinuria and hemoglobinemia. Hemolytic substances are found in the serum that act only at low temperatures. The tendency may persist for years. Hemoglobinuria may also be caused by great muscular exertion, but only one case of this kind has been observed so far. The patient was not syphilitic. During the attack there were chills, fever, severe prostration, tendency to hemorrhage and degenerative paralyses of the muscles. There was hemoglobinemia but no hemolytic substances were detected in the serum.

The form discussed in this paper, hemoglobinuria brought on by marching, occurs in young persons with unstable vasomotor systems. The general condition is not affected during the attack; no fever, no complications. The prognosis is good. It disappears after a few months without special treatment. The attack is brought on by walking, more quickly by walking in a lordotic position. Hemoglobinemia and destruction of leukocytes are demonstrable, but no hemolysins could be found in the serum. Porges and Strisower think it is caused by an abnormal vasomotor reflex called forth by walking in a lordotic position. This acts on the spleen in such a way that an excessive number of erythrocytes are destroyed. The blood thus becomes flooded with hemoglobin and the limit of tolerance of the liver for hemoglobin is exceeded. Hemoglobinemia and hemoglobinuria result.

68. **Cell Inclusion Bodies.**—Döhle has described bodies found in the leukocytes that he considered pathognomonic of typhoid. They occurred in various forms, large and small round bodies, long bodies resembling bacteria, spirals and bodies resembling spirochetes. Döhle designated them "spirochetes," but as this would be apt to cause confusion, Rehder proposes the name "trypochetes." The views expressed with regard to these bodies by other writers since have shown entire lack of agreement. Some authors hold that they are found only in scarlet fever and others that they are so common as to be almost normal, or at least that they are present in persons after recovery from a great variety of diseases. In order to settle the question if possible, Rehder made examinations of over 1,200 blood smears from over 200 patients. He thinks the confusion is due to the fact that some observers counted everything as inclusion bodies, even the smallest specks seen in the leukocytes, while others counted only the typical trypochetes. He classes the round and long formations as atypical inclusions, and the spirals and trypochetes as typical inclusions. He found typical inclusions in twenty-four out of thirty-nine cases of scarlet fever. They were more abundant in the severe cases than in the mild ones, and during the first days of the disease than later. In a series of other eruptive diseases that might be confused with scarlet fever, he found them only very rarely, while atypical inclusions were found in a great number of infectious diseases; they were relatively most frequent in tuberculosis. This explains the conflicting findings of other writers. Rehder considers the inclusions of diagnostic value in scarlet fever. He does not attempt to explain their real nature, though he thinks they are related to the protoplasm of the leukocyte. He does not agree with Döhle who believes that they are protozoa and the cause of scarlet fever.

Deutsche medizinische Wochenschrift, Berlin

January 7, XLI, No. 2, pp. 53-60

70 Modified Bile Technic for Cultivation of Typhoid Bacilli from the Blood. (Modifikation der Gallen-Vorkultur zur Züchtung von Typhusbazillen aus Blut.) P. Schmidt.

71 Veronal in Treatment of Delirium Tremens. E. von der Porten.

72 Unreliability of Vaccine Treated with Ether. (Die Brauchbarkeit des mit Aether behandelten Kuhpockenimpfstoffes.) L. Voigt.

73 Asepsis and Amputations in the Field Hospital. E. Schultze.

74 *Suggestion and Drugs. (Ueber Fonabisit, nebst Bemerkungen über die Wirkung von Suggestivmitteln.) W. Weintraud.

75 Portable Extension Dressing. (Der transportable Streckverband.) H. Töpfer.

76 Medicated Peat as Dressing for Wounds. (Chlortorfkissen als antiseptische Verbandsstoffsparer.) C. S. Engel.

77 Sanitation in the Field. (Die Beseitigung und Desinfektion der Abfallstoffe im Felde.) F. Croner.

78 Experiences of a Medical Missionary in Interior of China. H. van Vloten. Commenced in No. 1.

74. **Suggestion and Drugs.**—Weintraud refers in particular to a proprietary formaldehyd preparation which he has been thoroughly testing. He found it harmless but never witnessed the slightest objective benefit from its use. In connection with this he discusses the psychology of patients, their dislike to have any disturbances explained as "merely a nervous trouble." It is impossible to convince them that all or part of their disturbances is merely the result of some emotional stress in the past, possibly long forgotten. The physician has to distinguish between what he calls legitimate and illegitimate pains, that is, those that can or cannot be explained by some adequate irritation at the periphery in

some connection with the spot where the pain is experienced. It wounds the patient's vanity to have the pains explained as of the illegitimate type, and it is this class which turn to quacks.

Medizinische Klinik, Berlin

January 10, XI, No. 2, pp. 29-60

79 Abdominal Wounds. (Kriegschirurgische Erfahrungen im Feldlazarett.) O. Nordmann.
80 *Tetanus. Riehl.
81 Injuries of the Eye in War. (Augenverletzungen im Kriege und ihre Behandlung.) C. Adam. Continued.
82 Tuberculous Infection and Superinfection. (Tuberkulöse Infektion und Reinfektion.) F. Hamburger.
83 *Auto-Injection of Blood. (Zur Methode der Eigenblutbehandlung.) B. Spiethoff.
84 Present Status of Abortion Problem. O. Rupp. Concluded in No. 3.
85 Is Colostrum the Unripe Secretion of an Insufficient Mammary Gland. G. Benestad.

80. **Chlorinated Lime in Prophylaxis of Tetanus.**—Riehl has been advocating for several years the use of bleaching powder for treatment of snake-bite. Calmette and Paltauf found chlorin effectual in treatment of animals injected with cobra venom in doses otherwise fatal, and Riehl got up a little case for persons exposed to snake-bite. The case contains a syringe, two needles, a measuring glass and a few 0.25 gm. tablets of chlorinated lime (bleaching powder). The measuring glass is filled with water up to the 15 gm. mark and one tablet is dissolved in it. The chlorin water thus produced is equivalent to 850 c.c. of chlorin gas in 1,000 gm. water. In case of snake-bite a tourniquet is applied to the limb above the bite and the chlorin solution is injected around the spot and into the subcutaneous tissue and muscle. The procedure has proved its usefulness in numerous instances. As chlorin destroys cobra toxin, Riehl is convinced that it will act in the same way on tetanus toxin, in addition to its familiar powerful action as a disinfectant and deodorizer. It seems thus destined to find wide use in warding off and treating tetanus. A mixture of one part chlorinated lime to nine parts bolus alba (kaolin) has proved the most convenient method of its use. It is sifted freely into wounds or blown in, powdering the whole of the wounded area thick with it. There is no pain from its application, while the wound cleans up and heals remarkably under it. The earlier it is applied, the better the effect, and Riehl urges its extensive use for all shell wounds and other contaminated wounds.

83. **Autohematherapy.**—Spiethoff's further experience has confirmed the excellent results from reinjection of the patient's own blood or serum in various skin affections, especially in eczema and itching dermatoses. (A previous communication on the subject was summarized in THE JOURNAL, July 26, 1913, p. 315.) He has never had any mishaps with his intravenous technic but he has discarded the second cannula which he advocated in his earlier report. He uses a cannula as wide as can fit into the vein, and in some cases repeats the injection daily or even twice daily, injecting up to 100 or 200 c.c. of blood each time, keeping it up sometimes for weeks. As there are no disturbances afterward, he says, the injections can be done on out-patients. He claims for this autoserotherapy or autohematherapy all that can be obtained from simple serotherapy under any conditions, while the advantages of freedom from danger of anaphylaxis and of contracting disease from another person as well as the saving of time, are important points in its favor. He explains the result as due to a modification of the reaction of the skin to irritation from any source. No case-histories are given here.

Monatsschrift für Kinderheilkunde, Berlin

XIII, No. 6, pp. 245-296

86 Two Cases of Imbecility in Late Infancy with Transient Apraxia of One Hand. (Zwei Fälle von Verblödung im späteren Säuglingsalter mit vorübergehenden Halbseitenerscheinungen.) K. Tergast.
87 Case of Traumatic Bulbar Paralysis in Child of Five. F. Erbsen.
88 Gravity of Secondary Infection in Syphilitic Rhinitis Neonatorum. (Entstehung des dritten Stadiums der Rhinitis luetica Neonatorum.) E. Koch.
89 Electrical Demonstration of Spasmophilia in Cases of So-Called Initial Convulsions in Children. (Initialkrämpfe älterer Kinder.) H. Gebhardt.
90 *Calcium Phosphate in Treatment of Rachitis. L. Frank and E. Schloss.
91 *Treatment of Spasmophilia with Phosphorized Cod Liver Oil and Calcium Phosphate. E. Schloss.

90. **Cod Liver Oil and Calcium Phosphate in Treatment of Rachitis.**—This is Schloss and Frank's seventh communication on the treatment of rickets since early in 1913, publishing the favorable effect in rickets of treatment with cod liver oil and calcium phosphate. They have already reported fifty-four metabolism experiments showing that this method of treatment is justified in general practice. But as this treatment seems to be in contradiction to the generally accepted theories with regard to rickets, it was deemed advisable to take up still further experiments to exclude any doubt. These experiments were designed to show the permanency of the good effects obtained. Thus seventy-eight further experiments are described, with tables and weight curves. The medication was given for at least a week before the metabolism experiments were made, to be sure that the metabolism had become adapted to the new conditions. Further investigations were made at regular intervals to show the constancy of the effect. The experiments extended over two or three months for each child and the findings in five-day periods are given for seventy-eight series of investigations. Children were selected in whom the rickets had begun early and made marked progress, except one in whom rickets had just manifested itself, and the treatment was given for prophylactic purposes. The cod liver oil and tricalcium phosphate were given in the form of an emulsion. (See following abstract for formula.) The experiments show that the treatment in the earlier as well as in the later stages of rickets brings about marked improvement in the calcium and phosphorus balance. The effect does not disappear on long continued use of the medication but rather seems to increase. After cessation of the treatment, the balance of the bone-forming minerals continues better than in the preliminary period, which is a sign of the permanency of the effect of this treatment. It is also manifested clinically by disappearance of the softness of the bones.

91. **Treatment of Spasmophilia with Cod Liver Oil and Calcium Phosphate.**—Schloss used this treatment, advocated above, in spasmophilia also. His material is very small—only 4 cases—but in all these cases the symptoms, the spasm of the larynx, Chvostek's sign and increased electrical excitability, disappeared permanently after the administration of 10 gm. cod liver oil and 1 gm. tricalcium phosphate. He thinks that calcium phosphate is to be preferred to calcium chlorid, which has been recommended by some, because the chlorid, which must be given in large doses, has certain bad effects on the child, while phosphorus has an exceptionally good effect in nervous complaints. The prescription calls for 10 gm. calcii phosphoric. tribasic. puriss. in 100 gm. ol. jecor. asell. The dose is 5 gm. twice a day, shaking well before using.

Münchener medizinische Wochenschrift, Munich

January 5, LXII, No. 1, pp. 1-40

92 *Signs of Incipient Heart Weakness. (Klinische Zeichen beginnender Herzschwäche.) F. Moritz.
93 Deviation of Complement with Small-Pox. (Komplementbindung bei Variola.) A. v. Konschegg.
94 *Blocking the Gasserian Ganglion for Neuralgia. (Die Heilung hartnäckiger Trigeminusneuralgien durch Injektion von Alkohol ins Ganglion Gasseri.) G. Hirschel.
95 Reform in High School Curriculum. (Der biologische Unterricht an den bayerischen Gymnasien und die neue Schulordnung.) F. Crämer.
96 Experimental Research on Action of Magnesium Sulphate in Tetanus. (Wesen und Aussicht der Tetanustherapie mit Magnesiumsulfat.) W. Straub.
97 Typical Fractures of the Toes. (Typische Bruchlinien bei Quetschungsbrüchen der grossen Zehe und des zugehörigen Mittelfussknochens, nachgewiesen an Friedensverletzungen und Seekriegsunfällen der Marine.) M. zur Verth.
98 *Wire Extension from the Heel. (Zur Klappschen Drahtextension am Kalkaneus.) P. Burger.
99 *Treatment of Tetanus. R. Schneider.

100 Fenestrated Plaster Casts. (Zur Frage des gefensterten Gipsverbandes und der Reinhaltung desselben.) M. Kahleyss.
101 Certificates as to Invalidism Among the Troops. (Aus der Gutachtertätigkeit des Arztes bei Ersatztruppenteilen.) G. Besold.
102 *Arrest of Septic Hemorrhages after Injection of Fresh Human Serum; Two Cases. H. Kronheimer.

92. **Clinical Signs of Incipient Weakness of the Heart.**—Moritz comments on the fact that the symptoms noticed with incipient weakness of the heart can be caused by vasomotor influences, and hence it is not easy to ascertain the exact share of the heart in enlargement of the liver, in edema and in albuminuria, for example. There is scarcely a single symptom which testifies unmistakably to weakness of the heart; it is only by estimating the disturbances as a whole that it is possible to exclude other causes, especially the "merely nervous" disturbances. The pulse is one function of the heart, but it is not a measure of its force until the heart has reached the limit of its powers. Even with insufficient heart action, the arterial blood pressure may be normal or above. An abnormally high blood pressure is a sign merely that the heart is being called on for an extra amount of work, and hence measures are needed to reduce its task to prevent its getting worn out. The venous blood pressure is more instructive; abnormally high pressure in the ulnar vein indicates stasis at this point. The test is applied with the patient reclining; one leg is held up in the air and the effort of doing this induces an abnormally high pressure in the ulnar vein if the pumping force of the heart is below par.

Gradual acceleration of the pulse at rest is an important sign of encroaching weakness of the heart, as also acceleration persisting after physical exercise. He tests this by taking the pulse, reclining, and then again, reclining, after a series of ten exercises in bending the knees. In less than two minutes afterward the accelerated pulse has dropped back to normal when the heart is sound, but it keeps fast if the heart has begun to weaken. The pulse is still fast if examined while the patient is asleep that night.

Moritz has found that the average heart beat during sleep at night is 57, averaging about 20 per cent. less than during bed rest while awake. Even a sound heart shows the effect at night of considerable exercise, such as bicycling, during the day; the pulse is higher than under other conditions. When even a sound heart shows such an effect, the effect on a weakened heart must be correspondingly greater. When the acceleration of the pulse is of purely nervous origin it usually subsides during sleep, but acceleration from cardiac insufficiency keeps up proportionally, even during sleep at night.

He has encountered many instances of overexertion of the heart among the troops at the front. In three cases the heart sounds were pure and the organ was not enlarged but the pulse in repose was 96, 108 or 132, the only objective findings to explain the oppression in the chest, the dyspnea or the extreme exhaustion observed. Abnormal readiness to fatigue or exhaustion may be the first sign of the heart's not being quite up to par. Another sign is a tendency to yawn during exertion. The connection of various disturbances with preceding exercise speaks against a nervous origin for them. A feeling of suffocation may sometimes occur from psychic influences alone; exercise relieves it while exercise has a tendency to aggravate dyspnea from heart weakness, anemia or respiratory trouble.

Cardiac asthma coming on at night with coughing and copious thin and foamy sputum is a mild form of edema of the lungs. A common form of cardiac dyspnea is that which comes on as the individual drops to sleep. This may occur repeatedly, especially when the arterial blood pressure is high. Contracted kidney is frequently encountered under these circumstances. The discovery of hypertonicity with these disturbances points to a periodical nocturnal weakness of the heart. Such patients are mostly elderly. The heart, apparently normal at other times, reveals its latent weakness as sleep puts an end to sense stimuli which aid to maintain tonicity during the waking hours. Recognition of this early sign of insufficiency permits proper treatment—camphor or morphin for temporary aid, followed by a mild course of digitalis, supplemented possibly by venesection. Another early sign, and perhaps long the only one, is a gallop rhythm.

This also calls for digitalis, as it indicates, he says, stagnation of blood in the left auricle as the ventricle contractions grow weaker. The presystolic gallop is the more common, and the blood pressure with it is abnormally high.

94. **Injection of Alcohol Into the Gasserian Ganglion.**—Hirschel reports that there has been no recurrence of the extremely severe trigeminal neuralgia in the seven cases in which he blocked the gasserian ganglion by injection of alcohol. In two there was only slight improvement at first but gradually the cure became complete.

98. **Wire Extension from the Heel.**—Burger has applied in fourteen cases Klapp's method of suspending a weight from a wire passed through the heel. The ends of the wire are brought through a board below, the holes far enough apart to hold the ends of the wire parallel as they pass down the sides of the heel. He regards this as a simple and effectual method for extension. Some of the patients did not complain of any painfulness from it, and the others did not mind the slight pain at first.

99. **Tetanus.**—Schneider states that none recovered of the tetanus patients treated with subcutaneous injection of antitetanus serum while three of the nine given intravenous injections were saved out of a total of twenty-two cases. The wounded are apt to ascribe to their wound the first faint symptoms of tetanus, so the physician must make special inquiry for slight "rheumatic" pains and stiffness in the wounded limb, fatigue in chewing, pains around the mouth and brief cramps in the chest muscles, like a "stitch in the side."

102. **Arrest of Hemorrhages in Sepsis.**—In Kronheimer's two cases a tendency to recurring severe parenchymatous hemorrhages, accompanying extensive septic wounds, was arrested by subcutaneous injection of 2.5 c.c. of fresh human serum repeated with twice the dose three days later in one case. In the other, 5 c.c. was injected each time. The hemorrhages did not recur afterward, although the first patient's history suggested a tendency to hemophilia.

Wiener klinische Wochenschrift, Vienna

January 7, XXVIII, No. 1, pp. 1-28

103 *Failures in Operative Treatment of Exophthalmic Goiter. (Zur Frage therapeutischer Misserfolge bei Morbus Basedowii.) H. v. Haberer. Concluded in No. 2.
104 Dysentery. H. Salomon and E. Wiener.
105 Extract of Blood Platelets in Treatment of Uncontrollable Hemorrhage from the Lungs. (Koagulen bei unstillbarer Lungenblutung.) H. Riedl.
106 Estimation of Past Intervals of Time Almost Always Shortens Them. (Zur Schätzung der verflossenen Zeit und ihre Rolle bei der Aufnahme von Krankengeschichten.) J. Kollarits.

103. **Treatment of Exophthalmic Goiter.**—Von Haberer's success in treating exophthalmic goiter by resection of the thymus was reported in these columns last year, July 25, 1914, p. 361, and October 3, p. 1237. The Basedow symptoms rapidly subsided and the improvement was durable in his twenty-one cases. These favorable permanent effects contrasted with those in other cases in which the thyroid alone had been resected, emphasized the important part which the thymus must have played in the Basedow syndrome. He here reports three additional cases in which the indications were apparently the same; a severe form of exophthalmic goiter was accompanied by symptoms showing disturbance in both the vagus and sympathetic nervous systems, in short, the syndrome calling for resection of the thymus. In the first case the young woman for twelve hours seemed much relieved by the resection of both thyroid and thymus as in his preceding successful series, but the next day she was restless, the pulse 160. The restlessness increased and the pulse ran up to 200, with fever and much cyanosis and the woman died the third day. There was thus the same fatal aggravation of the Basedow symptoms as sometimes follows resection of the thyroid alone, except that there had been a twelve-hour period of relief before the symptoms returned. The case seemed to upset the conception that the thymus

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is responsible for the major part of the symptoms, as he had excised a large piece of the thymus. Necropsy, however, steadied this conception on even a more solid base, as it showed that although a piece of the thymus nearly as large as an ordinary thymus had been resected, yet this was only a small fraction of the thymus in this case. What was left weighed 70 gm. The article is to be concluded in No. 2.

Zentralblatt für Gynäkologie, Leipzig

January 9, XXXIX, No. 2, pp. 17-32

107 Sins Against Asepsis in Operating. A. Sippel.

Zentralblatt für innere Medizin, Leipzig

January 9, XXXVI, No. 2, pp. 17-32

108 Transmission of Disease by Insects. (Verbreitung von Seuchen durch Insekten im Kriege.) J. Versluys.

Gazzetta degli Ospedali e delle Cliniche, Milan

January 7, XXXVI, No. 2, pp. 17-32

109 *Loss of Pharmacologic Power of Atropin Solutions on Standing. I. Simon.

January 10, No. 3, pp. 33-48

110 *Aleukemic Myelosis. II. (Le mielosi aleucemiche eritroblastiche dal punto di vista clinico.) G. Ghedini.

109. Rapid Loss of Pharmacologic Power of Atropin.—Simon has been experimenting on rabbits to learn how soon an aqueous solution of atropin loses its power to paralyze the vagus. He tabulates the findings in thirteen experiments, all testifying that in three days from the making of the aqueous solution not only the minimal dose that paralyzes the vagus under other conditions, but much larger doses, fail to paralyze the vagus. The minimal dose per kilogram of weight is not much larger for the rabbit than for man. He advises druggists to keep on hand vials with a capacity of 10 c.c. but containing 0.01 gm. atropin sulphate. In another vial 10 c.c. of water is kept, and both vials are sterilized. Then by pouring the water on the atropin, the sterile 1 per thousand solution is ready in a minute.

110. Aleukemic Myelosis.—This is the second instalment of Ghedini's study of what he calls erythroblast aleukemic myelosis. The spleen is enlarged in every case, but there may be abnormally large numbers of red blood cells, with or without subleukemia, or there may be abnormally small numbers of blood corpuscles with or without chronic jaundice, sometimes associated with cirrhosis of the liver. These combinations form five different types of aleukemic myelosis. He discusses each in turn, theorizing to explain the phenomena observed. They are all links of the same chain, he thinks, all traceable to a single fundamental cause acting on a predisposition, congenital or acquired, on the part of the myeloerythroblast apparatus, analogous to the territorial predisposition we style the lymphatic diathesis.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

II, No. 20, pp. 1569-1652

111 *The Tonus Innervation of the Striated Muscles. (De beteekenis der tonische innervatie voor de functie der dwarsgestreepte spieren.) S. de Boer.
112 *Fat Embolism. (Over vetembolie.) A. Nicolai.
113 Acute Mania; Two Unusual Cases. G. C. Bolten.

No. 21, pp. 1653-1732

114 *Treatment of Varicocele by Resection of the Pampiniform Plexus. J. A. van Dijk.
115 Organic Matter in the Air in School-Rooms. (Het stofgehalte van de lucht in schoollokalen.) S. van Voorthuijsen and G. H. Leopold.
116 Treatment of Complete Fissure of the Anus. C. de Feijfer.

111. Autonomous Innervation of the Striated Muscles.—De Boer's article is accompanied by forty-one illustrations or diagrams showing his findings on frogs and cats.

112. Fat Embolism.—Nicolai discusses the literature on this subject in connection with the case of a middle-aged man who met with an accident in which one leg and several ribs were fractured. Respiration and pulse were accelerated thereafter and coma developed the second day with death the third. Necropsy revealed fat embolism as the cause of death.

114. Treatment of Varicocele.—Van Dijk tabulates the details of forty-eight cases of varicocele in which he resected the pampiniform plexus in treatment and reexamined the patients from one to twelve years afterward. The disturbances from the varicocele are due almost entirely to the pressure on the pampiniform plexus, and Bennet's method of resecting the entire plexus, from the external inguinal ring to the epididymis, is, he insists, the logical and effectual treatment. In case of hydrocele, the tunica proper of the testicle can be incised and turned back by Winckelmann's technic.

Russky Vrach, Petrograd

XIII, No. 29, pp. 997-1028

117 Intravenous Injections of Concentrated Solutions of Neosalvarsan. V. I. Terebinsky.
118 *The Action of Ischemia on Surgical Tuberculosis. D. L. Elkind.
119 *Injection of Liquid Petrolatum Into the Abdominal Cavity to Prevent Adhesions. S. N. Lissovskaia and I. I. Djanelidze. Commenced in No. 28.
120 *Functional Achylia of the Stomach and Pancreas. F. N. Orloff.
121 *Excrescences on the Heel Bone. (Exostoses Ossis Calcis.) E. I. Kanevshaia.
122 *Cases of Communication between Eosophagus and Air Passages. (Fistula eosophago-trachealis.) I. E. Rashb.

118. Influence of Ischemia on Local Tuberculous Processes.—Elkind performed eighty experiments on rabbits for the purpose of studying the effect of ligation of the renal artery on tuberculous infection of the kidney involved. A virulent culture of tubercle bacilli was injected into the parenchyma and pelvis of the left kidney. Simultaneously the left ureter was ligated in some rabbits. In others the tubercle bacilli were injected into the vein of the ear and, some time after the infection had set in, the renal artery was ligated. Those rabbits that survived the operation were killed about four months after the ligation, when the contracted kidney could no longer be palpated. The rabbits that survived the ligation of the renal artery rapidly improved and gained in weight, the temperature becoming normal. The kidneys were found studded with tubercles but the nodules had gradually shrunk, showing a proliferation of connective tissue and infiltration with lime. The tuberculous foci were found walled in with fibrous capsules of varying thickness. Thus regressive changes in the tuberculous kidney were plainly evident as the result of the artificially induced ischemia, just as occurs in the lungs after ligation of the branches of the pulmonary artery.

119. Prophylactic Treatment of the Peritoneum Before Operations.—Lissovskaia and Djanelidze injected camphorated oil into the abdominal cavity in cases of acute purulent and adhesive peritonitis, but without any good results. In one patient with adhesive peritonitis that had followed an appendicitis operation, 15 gm. of liquid petrolatum were injected into the abdominal cavity after the adhesions were separated. The patient felt well for about five months when the old complaints reappeared. Blue-light treatment gave some relief. Experiments with injection of liquid petrolatum into the peritoneal cavity of rabbits after the serous covering of the small intestines had been detached, proved that liquid petrolatum may remain in the body for a long time without affecting the general condition of the animals, but it causes some peritoneal irritation. Therefore liquid petrolatum can not be relied on to prevent postoperative peritoneal adhesions. The treatment of the latter must be prophylactic—absolute asepsis, careful handling of the peritoneal covering of the intestines, prevention and careful arrest of hemorrhage, etc.

120. Functional Deficiency in Stomach and Pancreas Secretion.—Some of the conclusions Orloff came to from his studies of twenty-eight patients with different diseases are that functional achylia of the stomach and pancreas may occur together. Also that in gastric achylia there eventually occurs a vicarious increased secretion of trypsin. In pancreatic achylia the secretion of the diastatic ferment probably suffers also. Pancreas extract in treatment for pancreatic achylia gave good results in his experience.

121. Excrescences on the Heel Bone.—Kanevshaia points out the frequency of exostoses on the os calcis—calcaneum

spurs—as the cause of pain in the heel. This cause should be looked for in patients suffering from varicose veins in the legs, as such patients frequently complain of circumscribed pain in the feet. In cadavers these excrescences are found in about 9 per cent. They are bilateral and occur in males more frequently than in females, but do not seem to develop before the age of 15. Those exostoses that occur in arteriosclerosis and gout are not true excrescences but are merely deposits of salts in the soft tissues. The pain is due to the crushing or fracture of the exostosis, to bursitis or derangement of the arch or to pressure of the bone growth on the soft tissues. The pain does not radiate. The most rational treatment is surgical; the bursa should be removed also. To avoid possible relapses, arch supporters should be worn even if the present flat-foot does not cause any trouble.

122. **Communication Between Esophagus and Air Passages.**—In Rashb's three cases the causes of the esophagotracheal fistula were in two cases carcinoma of the esophagus and in one trauma of the esophagus caused by a swallowed bone. The most prominent clinical symptom was severe coughing after swallowing food, especially fluids. Part of the swallowed food was expelled with the sputum. In case this symptom is not pronounced, endoscopy may help the diagnosis. The prognosis is absolutely bad, as the patients inevitably succumb to aspiration pneumonia.

Hospitalstidende, Copenhagen

December 30, LVII, No. 52, pp. 1521-1544

123 *Paraffin Mixture with Low Melting Point. V. Jensen.

January 13, LVIII, No. 2, pp. 25-56

124 *Surgical Treatment of "Medical" Nephritis. (Erfaringer om kirurgisk Behandling af de kroniske aseptiske "medicinske" Nefriter.) T. Rovsing. Commenced in No. 1.

123. **Paraffin Mixture with Low Melting Point.**—For embedding tissues, Jensen uses a mixture of two parts paraffin with a melting point at 56 C.; two parts paraffin with a melting point at 40 C., and one part spermaceti. This mixture is as transparent as pure paraffin and the melting point is about 41 C. He treats the specimen first with alcohol and then with benzin before transferring it to the melted paraffin mixture.

124. **Surgical Treatment of Chronic Aseptic Nephritis.**—In forty-six cases of chronic, aseptic "medical" nephritis Rovsing has applied nephrolysis. This is practically the same as Edebohls' decapsulation. Rovsing had published this nephrolysis method in 1895, some time before Edebohls' publications. He is much more cautious in accepting indications for it than Edebohls, and he also explains its mode of action somewhat differently. Rovsing's cases have shown that medical nephritis may be restricted to one kidney alone, and there are grounds for supposing that this is not uncommon not only with interstitial but with parenchymatous and glomerular nephritis. He urges internists to draw the urine from each kidney and examine it separately. Especially in case of hemorrhagic nephritis, this may be of vital importance as simple nephrolysis may cure parenchymatous and glomerular nephritis of one or both kidneys.

He slits the membrane proper, breaks up adhesions, and resects as much as possible of the adipose capsule if it shows fibrous degeneration. Incision of the kidney itself he denounces as dangerous and unnecessary. He comments on the comparative indifference of the internists to the etiology, diagnosis and classification of the different forms of chronic nephritis. Internists to-day, he declares, in the field of chronic nephritis are no further advanced than those of the last generation, and they have given little help to the efforts of the surgeons to cure aseptic nephritis. Among his forty-six patients, twenty were women. He excised a scrap of the kidney for examination in nearly every case.

In the thirteen cases of interstitial nephritis, perinephritis with paroxysmal pains and hematuria but no albuminuria, all the patients were clinically cured by the nephrolysis. In the majority the interval since has been over seven years. In sixteen other cases the syndrome was the same plus albuminuria, and all these patients have been cured, with two exceptions. In one patient the other kidney now calls for nephrolysis; another patient died. This latter was the only case in which the kidney proper was incised. It illustrates the danger of nephrotomy, while all the other cases in these two groups confirm the needlessness of any measures beyond the nephrolysis. The outcome of the nephrolysis confirmed the assumption that the nephritis affected only one kidney in most of the cases. It demonstrated further that simple nephrolysis not only cured the pains and hematuria but also the albuminuria. The albumin was materially reduced or disappeared entirely for a longer or a shorter time, and in the majority has not reappeared during the seven to nine years since.

Among his six cases of diffuse parenchymatous nephritis some were hemorrhagic, and in one he expected to remove the kidney, as the patient had long suffered from pains in the right kidney region. A gynecologist had diagnosed pyelonephritis, had prescribed hexamethylenamin and sent her to the hospital for nephrectomy. She improved at first but severe bladder tenesmus returned, and fibrinous clumps were passed in the urine, while the albuminuria increased. No bacteria were found in the urine. When the kidney was exposed, Rovsing contented himself with nephrolysis instead of removing the organ. The albuminuria and the pains subsided at once, but two weeks later there was a new attack. It coincided with resumption of the hexamethylenamin and when this was stopped, all disturbances ceased at once. He is convinced that the hexamethylenamin (urotropin) was responsible for all the syndrome that was not the result of the perinephritic adhesions. The drug induced albuminuria, a toxic cystitis, and desquamation of epithelium, thus setting up a vicious circle.

No benefit was apparent from the nephrolysis in four other cases of diffuse parenchymatous nephritis; but in the sixth case nephrolysis on both sides seems to have cured the patient completely after medical treatment for months had failed to relieve the bilateral nephritis with much albuminuria, and occasional hematuria. In his three cases of glomerular nephritis, it was bilateral in one case and only transient benefit was realized from the nephrolysis. In the two others only one kidney was involved and one patient has been entirely well during the seven years since the successful nephrolysis. The other patient had hemorrhages later, compelling nephrectomy, and has been in good health since this operation.

The nephrolysis did not benefit in the one case of orthostatic albuminuria in which it was applied. He now orders, in such cases, extra nourishing food, and tells the patient to lie down for one or two hours a day and never to stand long at a time. He asserts that a supporting bandage is an important aid in the cure of the wandering kidney which is the main factor in orthostatic albuminuria. As the patient stands up, the kidney becomes dislocated and albuminuria is the natural result. In one case both kidneys were loosely movable and the albuminuria and other disturbances compelled nephropexy on both sides, after which there was no further trouble.

Svenska Läkaresällskapets Handlingar, Stockholm

XL, No. 4, pp. 311-446. Last indexed January 2, p. 94

125 *Classification of Scoliosis as Aid to Treatment. (Bidrag till skoliosernas morfologi och terapi.) P. Haglund.

125. **Classification of Scoliosis as Aid to Treatment.**—This entire number is devoted to Haglund's study of the different types of scoliosis that develop from various general and local causes. It is based on 719 cases out of 771 cases since 1903 and 1,500 cases before that date, and is accompanied by 146 illustrations. His aim is to present the main features of each type of scoliosis in such a way as to facilitate clinical examination and point the way to treatment, according as the scoliosis is the result of pressure, of gravity, or of disease.

Ugeskrift for Læger, Copenhagen

December 31, LXXVI, No. 53, pp. 2215-2232

126 Colchicum in Acute Attacks of Gout. (Colchicumbehandling af det akute Anfald af ægte Gigt.) A. L. Fonss.